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ABSTRACT

China's agriculture posted impressive gains in 1982. The gross value of agricultural output rose 11 percent. Grain output reached a record 353 million tons. Record crops of cotton, oilseeds, sugarcane, sugar beets, and tobacco were harvested. Meat production was also a record. In 1982, grain imports rose, but cotton and oilseed purchases fell. For 1983, cotton production is expected to exceed 1982; the grain outturn will be close to the 1982 level; and oilseed and tobacco output will be lower. Agricultural imports are expected to decline.

KEYWORDS: People's Republic of China (PRC), China, agricultural production, agricultural policy, crops, livestock, foreign trade.

FOREWORD

This report reviews major developments in China's farm and agricultural trade sectors during 1982 and forecasts the outlook for 1983. It describes and examines the general economy, production of crops and livestock, trade, and agricultural policy developments.

The special article by Francis C. Tuan describes the main characteristics of China's livestock sector, analyzes the performance of that sector in the past few years, and evaluates the goal to raise meat output by 1990.

Frederick W. Crook coordinated this report. Sections were written by Frederick W. Crook and Carolyn L. Whitton. Sandra L. Evans provided statistical support, and Linda A. Mitchell was responsible for the typing.

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We welcome any comments, suggestions, or questions about this report or other aspects of the agricultural situation in China. Responses should be directed to Charles Y. Liu, Leader, PRC Section, Asia Branch, International Economics Division, Economic Research Service, USDA, Room 350, 500 12th Street, SW., Washington, D.C. 20250. Our telephone number is (202) 447-8676.

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CONVERSION EQUIVALENTS

Chinese	Metric		English
1 mu	0.667 hectare		0.1647 acre
15 mu	1.0 hectare		2.4711 acre
1 jin (catty)	0.5 kilogram =	.0005 ton	1.1023 pounds
1 dan (100 jin)	50.0 kilograms =	.50 ton	110.23 pounds
1 dun (ton)	1,000.0 kilograms =	1.00 ton	2,204.6 pounds
1 jin/mu	7.5 kilograms/hectare	6.93 pounds/acre	
Crops	Pounds/bushel	1.0 bushel	1.0 ton
wheat, potatoes, soybeans	60	0.2722 ton	36.743 bushels
rye and corn	56	0.02540 ton	39.368 bushels
barley	58	0.02177 ton	45.929 bushels
oats	32	0.01452 ton	68.894 bushels
cotton (480-lb bale)	NA	NA	4.593 bales
cotton (500-lb running bale)	NA	NA	4.409 bales

Exchange rate
In 1982 1 dollar equalled 1.8887 yuan.

ABBREVIATIONS FOR MAJOR SOURCES

Ag Att Report	USDA, Foreign Agricultural Service, Beijing Agricultural Counselor's Report.
BR	*Beijing Review* (*Peking Review*), weekly distributed by Guoji Shudian, Beijing, China.
China Ag Yearbook, 1980	He Kang, Editor and Chairman of Agricultural Yearbook Committee, *Zhongguo nongye nianjian: 1980* (*China Agricultural Yearbook, 1980*), Beijing, Nongye Chubanshe, Nov. 1981.
China Ag Yearbook, 1981	He Kang, Editor and Chairman of Agricultural Yearbook Committee, *Zhongguo nongye nianjian: 1981* (*China Agricultural Yearbook, 1981*), Beijing, Nongye Chubanshe, July 1982.
China Stat Yearbook, 1981	State Statistical Bureau, Editor, *Zhongguo Tongji Nianjian: 1981* (*China Statistical Yearbook: 1981*), Beijing, Zhongguo Tongji Chubanshe, Aug. 1982.
FB or FBIS	Foreign Broadcast Information Service, *Daily Report: China*, National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia.
JP or JPRS	U.S. Joint Publications Research Service, *China Report*, National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia. This report is published in three separate sections. JPE, refers to the *China Report—Economic Affairs;* JPP, refers to *China Report—Political, Sociological, and Military Affairs;* and JPA, refers to the *China Report—Agriculture.*
PN	*Zhongguo Nongminbao* (*China Peasant News*), Beijing, various issues in 1982.
RmRb	*Renmin Ribao* (*People's Daily*), Beijing, China.
TOFAS	USDA, Beijing, Agricultural Counselor's telegram to Foreign Agricultural Service, various dates in 1982.
SSB Communique	*Communiques of the State Statistical Bureau of the People's Republic of China in fulfillment of China's National Economic Plans*, Beijing, China's Financial-Economic Press, 1980, 1981, and 1982. These communiques are also published in RmRb and FBIS.
SWB	*Summary of World Broadcasts*, the Far East Weekly Economic Report, British Broadcasting Corporation, Reading, England.

PEOPLE'S REPUBLIC OF CHINA

Review of 1982 and Outlook for 1983

SUMMARY

The value of U.S. agricultural exports to China dropped sharply, from nearly $2 billion in 1981 to about $1.5 in 1982, a 24-percent decline. Corn shipments increased, but U.S. exports of wheat, cotton, and soybeans were substantially below 1981. Part of this decline was because China's overall agricultural imports were down. Even though more grain was imported than ever before, less wheat was purchased from the United States than was in 1981, because lower prices were obtained from other suppliers.

Total grain imports rose from 13.5 million tons in 1981 to 15.5 million in 1982, as planners continued to implement their import substitution program. The larger grain imports permitted more area to be sown to other crops, like cotton and oilseeds. Domestic production of cotton and oilseeds increased, and imports of these commodities fell sharply. These policies and actions, assisted by record harvests for most crops, were behind the drop in agricultural imports from the United States. U.S. wheat exports dropped from 7.6 million tons in 1981 to 6.9 million in 1982. U.S. corn shipments, however, rose from 468,000 tons to 1.6 million. Cotton shipments declined sharply from 249,000 tons to 117,000, and soybean exports fell from 473,000 tons to 246,000.

China's gross value of agricultural output in 1982, at 278.5 billion yuan, rose 11 percent from 1981. The crop subsector was still dominant, accounting for 63.6 percent of total output value. However, the other subsectors, such as livestock and rural sideline production (mainly the processing of agricultural commodities), increased their share of output, from a combined 32.2 percent in 1978 to 36.4 percent in 1982. In terms of sown area, output of crops, head of livestock, and number of workers, China is one of the world's largest agricultural economies.

Grain output reached a record 353.43 million tons, 8.7 percent above 1981. Farmers took advantage of good weather, new production incentives, and increased supplies of inputs to top records set in past years. The wheat outturn reached a record 68.42 million tons, based on substantial gains in yields in the face of reduced area. The rice crop hit a record 161.24 million tons, with a phenomenal 13-percent increase in yields. The coarse grain outturn was 83 million tons, only 2.2 million above 1981, because dry weather in the Northeast region reduced the harvest. Tubers, pulses, and other miscellaneous grains had good harvests.

Crops other than grains also did well in 1982. Oilseed production increased 11 percent from 1981 because of yield and acreage increases. Rapeseed and cottonseed area expanded in 1982, and both crops hit records. Soybean area rose because of increased procurement prices, but once again, dry weather in the Northeast region was a hindrance; output fell 300,000 tons to 9.03 million. Sunflowerseed tolerated the dry weather in the Northeast region, and production rose slightly.

Cotton production rose for the third consecutive year, to a record 3.6 million tons. Area expanded by just over 500,000 hectares, and yields rose 11 percent. Hemp and jute production fell.

Sugarcane output increased 24.3 percent to 36.88 million tons, and the sugar beet outturn rose 5.5 percent to 6.71 million. Tobacco leaf production, primarily flue-cured, rose substantially, from about 1.5 million tons in 1981 to an estimated 2.1 million in 1982. The increase in production came about largely because of higher procurement prices.

The feature article in this report describes the main characteristics of China's livestock sector, analyzes the performance of that sector in the past few years, and evaluates the goal to substantially increase meat output by 1990. From 1972 to 1982, China's hog numbers about doubled, from an estimated 129 million to 300 million. Meanwhile, meat output rose from about 6.5 million tons to 13.5 million, and per capita meat availability increased from about 8 kilograms to 13.3. These rapid gains came about because of a number of changes in policies affecting private-sector production, prices, and output goals.

By 1990, China plans to produce 18 million tons of meat. This goal can be met if plans are implemented to substantially raise the number of ruminant animals, and if producers succeed in obtaining more rapid weight gains in their animals, higher slaughter rates, and better dressing rates. Also, to achieve the goal, substantial imports of feed grains and protein meal may be required.

For the first time since the mid-1950's, government leaders made public details of their economic plans. They announced a long-range plan to the year 2000, outlined major goals for their Sixth 5-Year Plan (1981-85), and published their 1983 plan targets. Capital investment for 1983 will primarily go to building up the energy, transportation, and heavy and light industrial sectors. The agricultural sector is scheduled to receive less than 6 percent of total capital investment funds. Investments in some industries, however, may slightly expand the capacity to supply inputs, such as chemical fertilizer. Planners expect increases in agricultural output to come not from increased inputs, but from better management of resources.

Record 1982 crops will reduce China's agricultural imports in 1983. However, grain imports are expected to remain fairly high. Imports of other crops, such as oilseeds and cotton, will probably drop further. U.S. agricultural exports to China are expected to fall to around $850 million this year. The U.S. share of the wheat market will decline again, but U.S. corn shipments could rise. Negligible U.S. cotton and oilseed shipments are expected.

China's farmers will be hard pressed to duplicate the 1982 record grain harvest of 353 million tons. Nevertheless, the area sown to grain is expected to increase about 1 million hectares to 114 million. A larger area and good growing conditions since last fall could raise the 1983 wheat outturn. However, rice production will likely be 5 to 10 million tons below the 1982 record, because it will be difficult for farmers to maintain last year's yields. Despite decreased area, coarse grain output will increase several million tons from 1982 because yields likely will rebound from 1982's weather-reduced ones.

ECONOMIC GROWTH CONTINUES

Last year, the output of China's economy rose sharply. State revenues were up for the first time in the last 4 years, reaching a preliminary figure of 110.69 billion yuan. Government expenditures also rose somewhat, but the national deficit was, as planned, held to about 3 billion yuan. In addition, 1982 was the second consecutive year with a substantial surplus in foreign trade earnings. China is in a favorable financial position to continue its planned economic and technological development in 1983.

The gross value of industrial and agricultural output (GVIAO) was 8.7 percent above 1981. Of this amount, the gross value of industrial output (GVIO) grew 7.7 percent. Heavy industry made a 9.9-percent gain in 1982, after dropping in 1981. Light industry grew again—5.7 percent in 1982, compared with 14 percent in 1981. During this period, the first 2 years of the current Sixth 5-Year Plan, light industry achieved a much higher average rate of growth, reflecting its priority in China's current economic development policies. But, in 1982, growth of heavy industry exceeded the plan, while light industry failed to reach its target, suggesting, in part, that the central Government is having some difficulty holding down heavy industrial growth.

The gross value of agricultural output (GVAO) rose to 278.5 billion yuan, up 11 percent from 1981 (table 13).[1] Since 1978, GVAO has grown at an average annual rate of 7 percent. Agriculture's share of GVIAO has been trending downward since the early 1950's because of rapid industrial growth. In the early 1950's, more than half of GVIAO came from the agricultural sector. By the late 1970's and early 1980's, the relative share contributed by agriculture had dropped substantially. However, over the last few years, agriculture's share of GVIAO has dropped more slowly than it did in the past because of a good farm-sector performance and somewhat slower industrial growth.

After years of one-sided stress on grain production, agricultural policy during the past several years has emphasized the need for a more balanced development of the various subsectors of the rural economy—crops, livestock, forestry, fisheries, and rural sideline production (mostly processing of agricultural products). This policy has been generally successful, and the share of crops in total farm-sector output has declined, largely because of very rapid expansion of livestock and sideline production. This trend continued in 1982, although at a somewhat slower pace. The gross value of crop output rose 10.1 percent, while that of livestock, forestry, fisheries, and sideline production grew 13.2, 8.5, 12.1, and 12.8 percent, respectively. The share of crop production in GVAO now stands at 63 percent, compared with 68 percent as recently as 1978.

The increase in crop output in 1982 was the largest of any recent year. Production of most crops achieved records. Grain production rose 8.7 percent from 1981 and was 6.4 percent more than the 1979 record. For most of the other crops, 1982 output was at record levels for 3 or more consecutive years.

Most of the growth in the agricultural sector in 1982 resulted from the success of China's recent development policies. Incentives for specialization, in crops other than grains—e.g., higher procurement prices and guaranteed grain supplies—helped push area and production up. Institution of the production responsibility system, which by contract tied incomes to individual productivity, provided considerable incentive for increased outturns of many agricultural goods. Larger private plots, increased availability of markets in which farmers could sell their produce, and looser regulations on what could be sold in these "free markets" improved supply and distribution of many products.

Table 1.—Index of growth of agricultural subsectors[1]

	1979	1980	1981	1982
		1978 = 100		
Total	108.6	111.5	117.9	130.8
Crops	107.2	105.9	111.6	122.9
Livestock	114.6	119.7	120.9	143.7
Forestry	101.4	111.9	117.1	127.1
Fisheries	96.6	103.5	107.3	120.4
Rural sidelines	112.4	131.1	140.1	158.1

[1]Calculated from State Statistical Bureau data in constant 1970 prices.

Consumer demand has risen substantially in recent years because of higher population and income. Despite a strong birth-control program, population has increased about 53 million over the last 5 years, an average growth of about 1.35 percent annually. In addition, the population growth rate has increased in the last 3 years, reversing years of steady decline. Major reasons for this reversal include the growing share of the population now reaching childbearing age and the new rural responsibility system that raises the value of children to farm households. At the end of 1982, China's population reached 1,015 million and grew by nearly 1.5 percent during the year.[2]

Successful development policies have sharply increased rural incomes from both collective and private production. At the same time, wage increases and greater employment in the urban sector have boosted purchasing power there. In an effort to keep pace with the growth of per capita incomes, production of consumer goods is up sharply. One indicator of this growth is the value of retail sales, which climbed to 257 billion yuan in 1982, up 9.4 percent from 1981 and 65 percent above 1978. However, larger supplies of consumer goods have failed to keep pace with the growth of demand, and retail prices have risen. The official retail price index, which almost certainly understates the degree of inflationary pressure in China's economy because of strong government control of retail prices, stood at 150.4 in 1981 (1950=100), 10.7 percent above 1978. The price index increased further in 1982.

One outcome of the growth of income and improved supplies of consumer goods is that China's consumers are becoming more selective. The character of demand is changing from simple concern with a sufficient quantity of basic goods to a desire for a greater variety of goods

[1]GVAO data are in current 1982 prices; all growth rates are calculated using constant 1970 prices. GVAO data in constant 1970 prices are given in table 13.

[2]China completed a national census in 1982, the first since 1964 and only the third since 1949. This census showed China's population, including armed forces personnel, as of July 1, 1982, to be 1.008 billion.

and products with higher quality. This is creating a new set of problems for the cumbersome production and marketing system, and large stocks of many of the less desirable, lower quality goods have begun to accumulate in warehouses.

The successful policies of recent years were reconfirmed at the 12th National Congress of the Chinese Communist Party, which met in September 1982, and were elaborated on during the 5th Session of the 5th National People's Congress, which met from late November to early December. Major decisions of these congresses included:

- Approval of the Sixth 5-Year Plan for economic development and an economic plan for 1983.
- Acceptance of the goal of quadrupling GVIAO to 2,800 billion yuan by the year 2000.
- Adoption of new party and national constitutions.
- Agreement to restructure rural people's communes.
- Agreement to implement the production responsibility system in rural areas.

The production responsibility system (*shengchan zerenzhi*) is a work-payment scheme that was introduced in rural areas in the late 1970's. The system attempts to motivate farmers by rewarding them for taking responsibility for completing tasks. Both old and new measures have been used to implement this system. First, cadres borrowed those work measurement methods attached to the old labor-day work payment system (in operation since the mid-1950's), which used contracts to fix responsibility for tasks and the number of labor days to be awarded when the work was completed.[3] Secondly, cadres adopted an entirely new work-payment system in which households negotiated agreements with production teams to farm given parcels of land, raise specified crops, and return a portion of the crops to the team as payment for use of the land and to meet collective expenses, such as irrigation fees and health and welfare costs. This new system, called *baogan daohu* (full responsibility to household), does not use labor days as a form of payment. The system allows farm families the freedom to allocate their own labor resources. It also provides powerful incentives to increase output and reduce costs because households are permitted to keep or sell the crops and animal products in excess of the contracted quantity. At the beginning of 1983, three-fourths of the production teams were preparing to use the *baogan daohu system.*

Extension of the *baogan daohu* system is but one of the actions taken by last fall's congresses. Other agricultural policies emanating from the congresses continue to focus on improving living standards, meeting the needs of industrial expansion, and balancing the development of the forestry, livestock, fishery, and sideline subsectors with that of crops. To achieve these policies, emphasis will continue to be placed on: concentrating funds on key development projects; developing diverse economic forms (more independent cooperatives, individual enterprises, and the production responsibility system); having mandatory development plans where necessary, but also allowing increasing numbers of products to fall under market regulation; and controlling population. Officials declared that the Government will no longer raise incomes by increasing farm prices or lowering procurement quotas. Instead, efforts will be made to improve production and, consequently, incomes by increasing labor productivity, eliminating waste, and obtaining greater yields from limited cultivated area.

Government leaders continue to stress the importance of foreign trade as a critical element in the rapid development of the economy. To continue trade growth, the Government will further expand its exports while being more selective about its imports. Imports of technology and other high-priority products will continue to be emphasized. China's current trade surplus allows planned import growth to exceed export growth over the next few years. But, the Government remains cautious about excessive imports and will continue to limit its expenditures of foreign exchange on goods that can be produced domestically.

Clearly, the most difficult part of China's development strategy for coming years will be to continue the upward momentum of agricultural growth. Incentive measures and use of the production responsibility system already have done much to meet the new goals of increasing labor productivity and eliminating waste. The best returns from these measures will soon pass, and further positive effects on production will occur at a decreasing rate. (Carolyn L. Whitton)

AGRICULTURAL PRODUCTION INCREASES

China's farmers had an outstanding year in 1982. They took advantage of good weather, new production incentives, and increased supplies of inputs to raise record crops. Grain production reached 353.43 million tons, an alltime high. The oilseed outturn was a record in spite of decreased soybean output. Cotton output rose to a record 3.6 million tons; farmers harvested more tobacco leaf than ever before; and sugarcane and sugar beet production rose for the fifth consecutive year. Both livestock numbers and meat output rose.

In 1982, yield increases for wheat, rice, tubers, and cotton were in excess of 8 percent. With available data, it is not possible to fully explain such rapid yield increases. However, several possibilities present themselves, although the contribution of each is uncertain.

[3]For a brief description of the labor-day work payment system and a summary of changes in farm structure see "Farm Structure in China," China: Review of Agriculture in 1981 and Outlook for 1982.

First, the weather was generally favorable for crop production. With few exceptions, the balance of the weather throughout the country favored yield increases, especially for rice, tubers, rapeseed, and cotton. As for the exceptions, dry weather from fall 1981 through spring 1982 reduced summer grain yields in some areas in the North China Plain, but China's overall wheat harvest was a record. Dry summer weather in the Northeast reduced coarse grain and soybean output. In Guangdong and Hubei provinces, the early rice outturn increased in spite of local heavy rains in May and June.

Second, production responsibility systems, especially the *baogan daohu* system, and changes in commune structure may have had more of an impact on wheat, rice, and tuber yields than can be readily explained.

The third factor behind the yield increases was that a change in statistical coverage may have taken place. For example, a rapid increase in apparent yields could occur if farmers in past years had not reported grain grown on private plots but began to do so in 1982.

A fourth reason again lies in statistical calculation. USDA accepts China's State Statistical Bureau's (SSB) production figures for wheat, rice, and tubers. Because the SSB will not publish 1982 sown area figures for these grains until late 1983 or early 1984, USDA estimates of sown area were used to derive yield figures. USDA estimates for 1982 are subject to revision and are based upon: past trends in sown area published by the SSB, national and provincial sown area figures published in the press, and qualitative information gathered from journals and newspapers.

Record Grain Production

Grain production, at a record 353.43 million tons in 1982, was up 8.7 percent and surpassed the 1979 record of 332 million tons (table 14).[4] Grain area dropped an estimated 2 million hectares, the fourth consecutive year of decrease. But, the 1982 yield of 3.12 tons per hectare surpassed 1979's 2.78 tons by 12.2 percent and was 9.5 percent higher than in 1981. Favorable weather, improved material incentives for farmers, use of high-yielding varieties, better cropping patterns, more rational plot selection for grain fields, and improved field management contributed to the rise in output.

Summer-harvested grains—winter wheat, barley, and some pulses—rose to a record in 1982. These grains are preliminarily reported at 69.89 million tons, 5.9 million more than in 1981 and 1.9 million over the 1979 record. Summer grain area fell 600,000 hectares to 29.2 million, but yields rose from 2.14 tons per hectare to 2.39.

Fall-harvested grains—rice, coarse grains, soybeans, tubers, and other miscellaneous grains—also increased to an estimated record 283.5 million tons, 9.5 percent more than in 1981 and 7.3 percent above the 1979 record. Rice, coarse grain, and tuber production rose, but soybean output fell (table 15). Area sown to fall grain crops declined again.

Wheat Production Up

Wheat production in 1982 rose 14.7 percent to a record 68.42 million tons, surpassing the 1979 record of 62.73 million tons (table 14). Yields increased from 2.11 tons per hectare in 1981 to 2.47 in 1982, a 17-percent increase. Area sown to wheat decreased an estimated 600,000 hectares.

The outturn of the winter crop, which accounts for about 85 percent of the total, was up. Large increases in winter wheat output were registered in the provinces of Hebei, Henan, Shanxi, and Shaanxi in the North and the provinces of Jiangsu, Anhui, Zhejiang, and Sichuan in the South. Output fell in Shandong, China's second-ranked producing province, because of dry conditions in the spring and reduced sown area. Spring wheat output is estimated to be close to that in 1981.

Rice Crop Hits Record

The rice outturn increased 17.3 million tons from 1981, to a record 161.24 million, an increase of 12 percent. Sown area declined about 200,000 hectares, but yields increased a phenomenal 12.7 percent to 4.87 tons per hectare (table 14). Improved incentives, excellent weather, and the expanded use of high-yielding varieties created record yields. China cultivates five rice crops: early, intermediate, single-crop late, double-crop late, and northern rice. The early rice crop is harvested in early summer, and the late crop, which includes the remaining four types, is harvested in autumn.

The early rice harvest was estimated at 52.2 million tons, 2.1 million more than 1981. The figure may underestimate the early rice outturn. If the increase of 2.1 million tons is subtracted from the 17.3 million tons of total increase, then the expansion in the other rice crops would account for almost 88 percent of the rise, which does not seem likely. Farmers reduced early rice area to make more fields available for higher yielding intermediate and single-crop late rice. Therefore, early rice area dropped more than 100,000 hectares. Yields were up substantially. Zhejiang, Anhui, Hubei, Hunan, and Guangdong had especially good early rice crops.

The output of the late-harvested crops rose substantially in 1982, to an estimated 109 million tons, 16.2 percent above 1981. The area of double-crop late rice probably decreased again in 1982, but intermediate rice area expanded slightly. Jiangsu and Sichuan provinces, which account for 50 percent of intermediate rice, increased output by 0.55 and 1 million tons, respectively. Excellent fall weather boosted yields, and most of the major rice-producing provinces in South China posted gains.

The sown area of hybrid rice rose to 5.6 million hectares in 1982. The area sown to this crop expanded rapidly from 1976 to 1978, slowed from 1979 to 1981, and picked up again in 1982, increasing 460,000 hectares from 1981. Yields rose from 5.17 tons per hectare in 1981 to 5.7 in 1982, a 10.3-percent increase. The hybrid rice outturn reached 32 million tons, about 21 percent of all rice and 5.5 million tons more than in 1981.

Coarse Grain Production Up

Coarse grain production reached an estimated 83 million tons, 2.7 percent above 1981. Area sown to coarse grains was reduced slightly (table 14). Yields rose from 2.6 tons per hectare in 1981 to 2.68 in 1982, a 3.1-percent increase. Data on coarse grain output by province can be used to rank the top-ten producers for corn, sorghum, and millet, as shown in the accompanying table.

These provincial rankings indicate the importance of the North China Plain and the Northeast region. Dry summer weather in Heilongjiang and Liaoning hurt

[4] In China's reporting, grain includes wheat, rice, coarse grains, other miscellaneous grains, pulses, tubers (converted to a grain-equivalent weight using a 5:1 ratio), and soybeans.

Table 2.—Primary coarse grain-producing provinces, 1980[1]

Corn Province by rank		Sorghum Province by rank		Millet Province by rank	
			1,000 tons		
1. Shandong	8,225	1. Liaoning	2,265	1. Heilongjiang	1,035
2. Hebei	6,630	2. Hebei	890	2. Hebei	980
3. Liaoning	6,535	3. Shanxi	765	3. Shanxi	960
4. Sichuan	5,410	4. Jilin	675	4. Jilin	560
5. Henan	5,330	5. Heilongjiang	630	5. Henan	415
6. Heilongjiang	5,220	6. Shandong	315	6. Nei Monggol	395
7. Jilin	5,070	7. Sichuan	175	7. Shandong	315
8. Shaanxi	2,750	8. Henan	145	8. Shaanxi	285
9. Shanxi	2,630	9. Shaanxi	140	9. Liaoning	235
10. Yunnan	2,630	10. Tianjin	115	10. Gansu	155

[1] *China Ag Yearbook*, 1981, pp. 27-29.

coarse grain production there. Summer and fall weather favored the growth of coarse grain crops in the North China Plain, and Shandong, Hebei, Shaanxi, and Sichuan provinces netted production increases.

Record Grain Imports

According to USDA estimates, combined wheat and coarse grain imports for 1982/83 (July-June) will likely to rise substantially to 15.6 million tons, 1 million more than the previous year. In spite of good harvests, grain imports continue at high levels for several reasons. Imported grain is used by the Government to supply the requirements of urban areas. Also, imported grain supplies help underwrite the Government's program to encourage crop specialization by ensuring the availability of food grain supplies for farmers growing cash crops.

Wheat imports, which averaged about 8.5 million tons from 1977/78 through 1979/80, rose substantially to nearly 13.7 million in 1980/81, but they fell to 13 million in 1981/82 and 1982/83. The major change in China's wheat imports this year was the increase in the market shares of Argentina, the European Community, and Canada, while the United States' and Australia's shares fell. The United States shipped 8.4 million tons in 1981/82, but it is expected to ship only 4.3 million tons in 1982/83, a decrease of about 49 percent.

Coarse grain imports increased about 88 percent from 1981/82, but they are still 16 percent below the 1978/79 record. The shift from wheat to corn resulted from the low price of corn relative to wheat. Domestic demand increased because of the reduced output of coarse grains in the Northeast region and the expansion of feedlots on the outskirts of some large coastal cities. (Frederick W. Crook)

Output Of Other Crops Also Up

Area sown to other crops has risen substantially in the past few years. Much of the increase was based on government plans for increased production and regional specialization of these crops. The central or provincial governments increased production targets for localities to meet, forcing area to rise. The Government also increased procurement prices but lowered procurement quotas, raising the amount of nongrain production eligible for the higher, above-quota prices offered by the State. Some of the growth in sown area also resulted from individual farmers' response to these price incentives.

Oilseed Production Rises

Oilseed production achieved another large increase in 1982, rising 11 percent from 1981.[5] Production reached about 27.2 million tons, the third consecutive record (table 15). Much of the growth in production resulted from the third year of acreage increases; total area was up about 2 million hectares. Rapeseed accounted for most of the acreage increase, but the areas of each of the other oilseeds are estimated to have also expanded, but by much smaller amounts. Rapeseed and cottonseed provided most of the gain in total oilseed output; the peanut and sunflowerseed outturns rose only slightly. Production and yields of soybeans and sesameseed dropped by varying amounts.

Despite the production declines of some oilseeds, the increases in rapeseed and cottonseed substantially raised total production of oil and meal. Compared with 1981, oil and meal expanded by 16 and 10 percent, respectively. Estimated per capita availabilities of edible oil exceeded 4 kilograms, compared with only 2 as recently as 1978. Total meal availability was 10 million tons, versus about 6 million in 1978.

Rapeseed production showed the greatest growth of all the oilseeds, reaching 5.7 million tons, up 39 percent from 1981. In response to policies and incentives instituted in the last few years, farmers expanded total rapeseed area dramatically, to an estimated 4.6 million hectares, a 21-percent jump from 1981. Timely rainfall, more inputs, and the lack of early spring frosts, often a problem for winter rapeseed, also pushed yields up significantly.

Like rapeseed producers, cotton growers responded enthusiastically to production incentives by expanding planted area. Cottonseed production reached 7.2 million tons, 21 percent more than in 1981.

The soybean outturn in 1982 was slightly below the excellent 1981 crop, somewhat offsetting the gains registered by other oilseeds. Most of the decline occurred in the Northeast, the major producing region, where dry weather in early summer likely reduced yields. The drop in yields in the Northeast pulled the national average below the 1981 record. But, soybean production was still a respectable 9 million tons.

[5] Figures reported here refer to total oilseeds by the USDA definition, which includes soybeans, cottonseed, rapeseed, peanuts, and sunflowerseed. These differ from China's reported data, which are also listed in table 15.

Peanuts rose slightly from the 1981 level. Peanut production reached 3.9 million tons, up 2.4 percent. Both area and yields are estimated to have made gains of about 1 percent.

Production of sesameseed, which in the past has shown wide annual variation based on weather, dropped significantly in 1982, down to 342,000 tons, 33 percent below the excellent 1981 crop. Problems in Henan Province, one of the major producers, may have hindered sesame production.

For sunflowerseed, dry conditions in the Northeastern provinces apparently did not offset area increases, since sunflowers are a relatively drought-tolerant crop. Production of sunflowerseed is estimated to have reached 1.4 million tons, up about 5 percent from 1981.

Acreage and yields of other oilseeds, such as linseed and castorbeans, were probably about the same as in 1981. Production of these seeds likely was up about 6 percent.

The large gains in oilseed production during the last several years reportedly have pushed stocks of soybeans and rapeseed oil quite high. Imports of soybeans are expected to drop to only about 100,000 tons in 1982/83 (September-August), 80 percent less than in 1981/82 (table 24). Soyoil imports are estimated to be about the same as the previous year's 30,000 tons. Soybeans for food use continue to be exported to Japan and other Asian nations; these exports likely will exceed 250,000 tons in 1982/83, up from approximately 125,000 in 1981/82. Soyoil exports remain negligible. In addition, exports of peanuts dropped back to more normal levels this season, because the great surge in world demand died down.

Cotton Production Grows

For the third consecutive year, a substantial gain was made in cotton production. The 1982 crop reached a record 3.6 million tons, up 21 percent from 1981 (tables 15-17). Much of the increase was due to the more than 10-percent expansion of cotton area—to over 5.7 million hectares, compared with 5.2 million in 1981. Continued growth of cotton production was also due to the combination of generally favorable weather, an improved supply of inputs, cash-crop specialization incentives, and increased use of production responsibility systems. After several years of record cotton crops, imports dropped dramatically in 1982/83.

The North China cotton-producing provinces had a better season than Central China did. Production in North China was up about one-third, mostly because of an approximately 25-percent increase in area. Area in Shandong province, the largest producer, jumped nearly 400,000 hectares, more than 42 percent over 1981. Shandong had about one-fourth of national cotton area. Most other northern cotton-producing provinces achieved acreage increases ranging from 15 to 30 percent. Dry weather early in the growing season was overcome, and yields rose 7 percent to about 569 kilograms per hectare. Production in North China grew from about 50 percent of the total output in 1981 to nearly 60 percent in 1982.

Cotton production in the central growing area in 1982 was not as spectacular as in North China. Despite cool, cloudy weather, (usually detrimental to cotton), yields rose 10 percent to about 686 kilograms per hectare. But, production remained about the same as in 1981 because of a 10-percent decline in area. Cotton area was reportedly down slightly in every major producing province in the region except Jiangsu, where area remained the same as in 1981. Area in Sichuan was cut in half. Cotton acreage continued to shift from the central to the northern growing area. The shift in area likely boosted yields in the central region, because the best cotton-producing land remained while marginal cotton acreage was shifted out.

China's cotton imports have been dropping significantly in 1982/83 (August-July). Only an estimated 109,000 tons of raw cotton will be imported this year, 325,000 less than in 1981/82 and down 87 percent from 1979/80's record 869,000 tons (table 24). With larger supplies, expanded capacity, and new incentives to operate more efficiently, the industry produced more textiles and was able to meet more of the growing domestic consumer demand in 1982. Slowed growth of China's textile exports also enabled a greater portion of textile production to be used for domestic consumption. So, fewer cotton imports were needed.

U.S. cotton exports to China fell even more dramatically, from 185,000 tons in 1981/82 to only a few thousand in 1982/83. U.S. exports for the year were not expected to be much above this small amount. On January 19, 1983, China banned for this year further imports of U.S. cotton (together with soybeans and synthetic fibers) because of an impasse that developed in bilateral textile trade negotiations. China's action was in retaliation to U.S. imposition of import restrictions for additional textile categories. Because exports were expected to be very small anyway, China's restrictive action has had little effect on U.S. cotton. Even if a new textile agreement is reached soon, U.S. exports are not expected to rise significantly because China's demand will remain low.

Rising incomes have pushed consumer textile demand rapidly upward in recent years. But, domestic supplies have also grown, and the severe cloth shortages of the past have been basically alleviated. With more adequate supplies, consumer tastes in textiles have become more diversified. As a result, major disparities still exist between supplies of cotton and synthetic textiles. In general, China's textile industry has been unable to quickly adjust from its state of rapid expansion to one of slower growth with more emphasis on providing a greater variety of better quality products. Expansion of the spinning industry continued in 1982, adding more than 500,000 spindles and raising production.

But, a start was made at adjusting the disparity. The more rapid growth of production of chemical fibers in recent years resulted in an oversupply of these products, while there was still unfulfilled demand for many cotton textiles (table 19). So, in 1982, the Government restricted growth of chemical fiber output, and the production value of the textile industry as a whole rose only 1.3 percent from 1981. Chemical fiber output, however, was off only slightly, as planned, down to 517,000 tons from 527,300 in 1981. But, the output of cotton textiles rose rapidly. The cotton yarn outturn reached 3.354 million tons, 5.8 percent above 1981, and production of cotton cloth rose 7.6 percent.

This year, efforts are being made to balance consumption of cotton and synthetic textiles. Overstocking of synthetics occurred because production growth was very rapid. Furthermore, these fabrics were higher priced than other fabrics, were often of lower quality and less popular design, and had lower profit margins for both wholesalers and retailers. To encourage greater domestic consumption of synthetic textiles in 1983, the State Council readjusted cotton and synthetic prices. Beginning on January 20, 1983, actual prices of cotton textiles

were raised an average of 20 percent, and prices of synthetic textiles were lowered an average 30 percent. This was the second time synthetic textile prices have been reduced in recent years. Because of these changes, the relative price ratio of synthetic to cotton textiles fell from 2.4:1 to 1.4:1. Initial reports from China suggest this move has successfully stimulated domestic sales of synthetic textiles.

Sugar, Tobacco Rise Substantially

Sugar-crop production in 1982 rose 21 percent to 43.6 million tons, the sixth consecutive record. Sugarcane accounted for most of the increase, as its production jumped 24 percent to 36.9 million tons in 1982/83.[6] Cane area was reportedly expanded at the expense of cane quality, and as a result, the sugar content of cane was down significantly. Like those of other crops grown mainly in the Northeast, sugar beet yields were reduced, but the sugar content increased because of dry spring conditions. Despite lower yields, beet production reached 6.7 million tons, 5.5 percent more than in 1981, because of an estimated 20 percent increase in area. The total amount of sugar produced in 1982 was reportedly 3.4 million tons (table 18).

While imports of most cash crops fell dramatically in 1982, sugar was the exception. Sugar imports reached an estimated record 2.2 million tons, almost double 1981 and 24 percent more than 1977's record 1.7 million tons (table 24). The factors that pushed sugar imports up include high domestic demand and low world prices.

Of all 1982 crops, tobacco showed the largest gain. Output rose more than 40 percent from 1981, to an estimated 2.1 million tons (table 18). The Government reported 1981 production already had been sufficient to satisfy its 1.1-million-ton requirement for cigarette production, exports, and replenishing stocks, which had been low in previous years. Therefore, much of the 1982 increase was surplus supply. Most of the increase resulted from an expansion for flue-cured tobacco, a response to an increase in the purchase price and government sanction of private sales to processors. The area of flue-cured tobacco expanded 67 percent in 1982, on top of a 48-percent increase in 1981. The State Council has directed that area, production, and private sales of tobacco be significantly diminished in 1983.

The output of other crops was mixed in 1982. Production of jute and hemp fell 16 percent, but tea was up 16 percent, while silk cocoons increased a modest 1 percent (table 18). (Carolyn L. Whitton)

Livestock Numbers Climb

The gross value of livestock output in 1982 rose to 45.6 billion yuan, 13.2 percent above 1981. The number of hogs at yearend rose from 293.6 to 300.8 million, a 2.4-percent increase. The number of large animals (including cattle, horses, mules, and donkeys) increased from 97.6 to 101.1 million. Farm households in previous years could not own draft animals, but this restriction changed when the production responsibility system was implemented in 1982. The yearend number of sheep and goats declined 3.2 percent, from 187.3 million head in 1981 to 181.8 million last year.

Meat production increased to 13.51 million tons in 1982, up 7.1 percent from 1981. The output of pork, which constitutes most of the country's meat, rose to 12.7 million tons, 7 percent above 1981. The beef outturn rose to 266,000 tons, a 6.9-percent increase, and mutton climbed to 524,000 tons, up 10.1 percent. The output of wool and mohair rose 6.4 percent to 215,000 tons. Milk production increased substantially to 1.6 million tons, a 25.4-percent rise. (Frederick W. Crook)

FOREIGN TRADE

China's foreign trade in 1982 dropped slightly from the 1981 peak, but it remained relatively high, as it has since the late 1970's, when it became an important factor in China's overall development strategy. Much of the decline was due to lower prices brought about by the worldwide recession. China's leaders continued to view trade as an important vehicle for rapid industrialization. Exports were pushed to earn foreign exchange, while imports of both agricultural and industrial products were held down as much as possible.

Total exports expanded to an estimated $21.8 billion in 1982 (table 21). Although the export value continued to grow, as it has in each of the last 5 years, the rate of growth was smaller than in any of the previous 4 years—only 1.4 percent over 1981, compared with 14 percent in the previous year. The slower growth in export value probably was largely the result of lower prices and the recession that dampened demand for China's products.

While the export value continued to go up, the value of total imports dropped for the second consecutive year. Imports amounted to $16 billion in 1982, 11 percent less than 1981 and 17 percent below the 1980 record. The drop in import value reflects both China's policies limiting imports and lower world prices.

With exports up and imports down, exports exceeded imports more than in the previous year for the second consecutive trade surplus—a surplus estimated at $5.8 billion. China's reserves of both foreign exchange and gold were substantial at the end of 1982. Foreign exchange reserves reportedly reached $11.1 billion by December 31, 1982, up $6.4 billion from the end of 1981. In 1982, gold reserves remained about the same as in 1981, 12.67 million troy ounces. In all, available foreign exchange reportedly exceeded credit obligations by an estimated $2 billion. These factors place China in a very good position to continue its efforts to accelerate industrial development by importing key industrial goods and technology.

Agricultural Imports Drop

The total value of agricultural imports and exports in 1982 is estimated to be down (table 21). The slower rate of growth of agricultural trade in the last 2 years

[6] In February 1983, the SSB reconfirmed for the U.S. agricultural counselor in Beijing that sugarcane harvested during January-April is included in the previous calendar year's crop production statistics. However, the precise definition of China's processed sugar statistics was not discussed.

reflects lower prices in 1982 and China's policy of holding agricultural imports down in favor of importing industrial products for development.

Agricultural imports in 1982 fell to an estimated $4 billion, compared with $4.9 billion in 1981. Imports of soybeans and cotton dropped sharply (table 24), but continued-high grain imports kept total imports relatively large. With several years of record harvests, demand for oilseeds and cotton has been increasingly filled from domestic production. These commodities reportedly were overstocked as well, holding imports down further. Lower world prices also reduced the value of wheat and corn, which continued to be imported in large quantities (table 23). These relatively lower priced imported grains were substituted for imports of the more expensive cash crops. Imported grain is important for use in urban areas, for helping the central Government provide guaranteed supplies to producers encouraged to specialize in production of cash crops, and, increasingly, for the development of more modern livestock operations near urban centers.

Preliminary data suggest that the value of agricultural exports also fell in 1982. Agricultural exports are estimated to have reached about $4.5 billion, 5 percent below 1981 (table 21). The recession and lower prices likely held the value down.

U.S. Exports Drop Sharply

Total U.S. exports to China were $2.9 billion in 1982, a decrease of 20 percent from the $3.6 billion in 1981 (table 25). The value of both agricultural and nonagricultural exports dropped sharply. However, the share of nonagricultural exports relative to the total rose somewhat. The share of agricultural exports in the total was down from 55 percent in 1981 to 52 percent in 1982.

The total value of agricultural exports dropped from nearly $2 billion in 1981 to $1.5 billion, and was 34 percent under the 1980 peak. This downturn reflects both China's lower agricultural imports from all sources and its smaller 1982 imports of cotton, soybeans, and wheat from the United States. China continued to decline in importance as a market for U.S. farm products, falling from number six in 1981 to number seven. Wheat and corn remained the most important U.S. agricultural exports, accounting for 83 percent of the total value. The value of soybean and cotton shipments fell to only a 16-percent share, versus 30 percent in 1981. Purchases of these items will fall further in 1983. U.S. exports of cattle hides and tallow rose substantially in 1982, but they remain a minor portion of total agricultural exports. Exports of most other farm products dropped.

Total U.S. grain exports were up slightly from 1981; wheat shipments dropped, but sharply increased corn exports kept total grain shipments high (table 25). China purchased 6.9 million tons of U.S. wheat in 1982, down from 7.6 million in 1981. U.S. corn sales soared to 1.6 million tons, more than triple the 1981 level and close to that of 1980. Wheat exports will continue to decline in 1983, because other wheat suppliers—primarily Argentina and France—are offering China price discounts to sell their large wheat crops, replacing some U.S. sales. China is willing to buy from the lowest priced suppliers as long as some diversity of supply is maintained. The availability of lower priced wheat also allows China the opportunity to release its general frustration with many recent U.S. policies. The United States continues to be China's major source of corn because of its large, dependable supply.

Despite slow U.S. wheat sales in late 1982 and early 1983, China's 1982 purchases fulfilled the long-term grain trade agreement with the United States (table 22). For 1982, the second year of the 4-year agreement, U.S. grain sales approached the higher end of the range agreed upon (6 to 9 million tons), reaching nearly 8.6 million tons. However, 1983 purchases of U.S. wheat will be at the lower end of the range.

The quantity of U.S. cotton exported in 1982 dropped 53 percent to only 117,000 tons, and sales of soybeans fell to only 246,000 tons, from 473,000 in 1981 (table 25). The decline in U.S. sales reflects the overall drop in China's demand for imports of these crops from all sources, as well as a lowered U.S. share.

U.S. imports from China grew in 1982, reaching $2.2 billion, compared with $1.8 billion in 1981. As in past years, most of the total comprised nonagricultural imports. In addition, in 1982, all of the growth was in nonfarm imports, which grew 34 percent from 1981. Agricultural imports fell from $299 million to $171 million, a 43-percent decline (table 26). Much of the drop was due to a sharp decline in peanut imports because of the return to normal peanut harvests in the United States. The ten most important U.S. imports were again traditional items, such as mushrooms (mostly canned), vegetables, cocoa butter, essential oils, licorice root and extract, feathers and downs, tea, honey, bristles, and silk. (Carolyn L. Whitton)

OUTLOOK

Long-run economic goals stated in policy and planning documents indicate China's leaders want to see their country develop into one of the world's leading economic powers. They want to raise the material and cultural living standards of their citizens and desire to promote socialist modernization of the economy. The major economic objectives to be reached by the year 2000 are as follows:

- To quadruple the gross value of output of industry and agriculture.
- To increase agricultural production.
- To develop the energy and transport sectors.
- To improve education and science.

Government planners have outlined four 5-year plans from 1981 to 2000. The Sixth and Seventh 5-Year Plans (1981-85 and 1986-90) will be devoted to readjusting economic structures and to building a solid foundation for growth in the next decade. The decade covered by the Eighth and Ninth 5-Year Plans (1991-1995 and 1996-2000) is intended to be a period of rapid economic development.

The Sixth 5-Year Plan is the first that has been published since the 1950's. The basic task of this plan is to continue to implement policies designed to restructure institutions, to alleviate problems left over from the Cultural Revolution, and to lay a firm foundation for the Seventh Plan. Some of the key tasks for the Sixth 5-Year Plan are as follows:

- To increase GVIAO 4 percent per year.
- To maintain price stability.
- To increase output of consumer goods.
- To increase output of energy supplies and to revamp industries and machinery to conserve energy resources.
- To improve transportation capacity.
- To vigorously expand foreign trade.
- To strictly control population growth.
- To strengthen the education system.
- To expand the use of foreign and domestic research results.

The pattern of capital investment planned for the Sixth Plan supports the achievement of these key tasks. The relatively small importance of investments in agriculture, as well as industries and activities related to agriculture, can be seen in the accompanying table.

Whereas government proclamations declare that agriculture is first in importance in the economy, an examination of where funds will be invested suggests industry is the favored sector. Investment in the Sixth 5-Year Plan follows the patterns established in previous plans: the central Government's direct investment in agriculture is small compared with that given to industry. For example, planners expect to invest 4 times as much capital in the fuel and power industries as in agriculture. Part of the investment in other industries and activities, however, should have a direct positive effect on crop yields, as some of these newly expanded facilities produce more electricity, diesel fuel, and chemical fertilizer. Investment in communications and transportation also will give the Government better tools to solve current bottlenecks in planning and coordinating agricultural output and in marketing animals and crops.

The rate of capital accumulation in the Sixth Plan will continue to be high, 29 percent of national income. Since 1970, this rate was at or above 30 percent, and only dropped to 28 percent in 1981. Consumption funds will account for the remaining 71 percent of national income.

The 1983 Plan

The primary task of the 1983 plan is to improve the performance of the economy. Secondary tasks are to readjust, restructure, and consolidate institutions to permit greater output and efficiency. The GVIAO is expected to expand 4 to 5 percent from 1982. Specific agricultural output, trade, and input targets for 1983 can be found in the following table, along with 1982 output figures and 1985 plan figures to serve as a basis for comparison.

Table 3.—Planned capital investments in the Sixth 5- year Plan[1]

Items	Billion yuan	Percent of
Agriculture, forestry, water conservancy, and meteorology	14.13	5.9
Chemical industry	11.43	4.8
Communications and transportation	29.83	12.5
Fuel and power industries	58.63	24.6
Forestry and building materials	7.28	3.1
Textile and other light industries	13.98	5.9
Science, education, and health	9.43	4.0
Commerce and foreign trade	6.26	2.6
All others	87.53	36.6
Total investment in all sectors	238.50	100.0

[1] *FB*, 12/20/82, p. K9.

Plan targets for 1983 were published before actual 1982 output figures were known, so central planners may revise the 1983 figures. Agricultural authorities face some difficult problems as they try to increase output to meet the demands of the country. Population exceeded 1 billion persons in 1982 and is expected to increase 1.4 percent in 1983. This population increase means that farmers must struggle to produce food and fiber for an additional 14 million people in 1983. To this increase one must add the growing demand for farm products that comes from rising incomes in both urban and rural areas. China's farmers cannot meet the demand for greater output by expanding cultivated area. They already are fully using available arable land, and the small, increasingly costly results of reclamation work are largely offset by the amount of cultivated land used up by new factories, roads, and housing projects. When there is an increase in the sown area of one crop, there will generally be a corresponding decrease in the area of some other crops.

Planners are counting on yield increases to boost crop output in 1983. In the past 5 years, the rise in yields came from a combination of increases in the use of modern inputs, such as chemical fertilizer, water supplies, and improved seed varieties; improvements in farm management; and production incentives.

While central planners do not expect chemical fertilizer production to increase in 1983, output will likely expand several hundred thousand tons for the same rea-

Table 4.—1983 and Sixth 5-Year Plan Targets

Items	1982 actual[1]	1983 planned[2]	1985 planned[2]
	Percent increase		
GVAO	11	4	4-5
	Million tons		
Grain output	353.43	342.5	360
Cotton	3.6	3.37	3.6
Tobacco, flue-cured	[3]1.807	1.2	1.3
Oilseeds	11.817	—	10.5
Meat	13.506	—	14.6
Chemical fertilizers			
Nitrogen	10.219	—	10.55
Phosphorus	2.537	—	2.80
Potassium	.025	—	.05
Total	12.9	12.55	13.40
	Thousands		
Large and medium-sized tractors	40.0	—-	60.00
Hand tractors	298.0	—-	280.00
	Billion yuan		
Total trade	77.2	68.40	85.5
Exports	41.4	32.80	40.2
Imports	35.8	35.70	45.3
	Percent increase		
Population growth	1.45	1.4	1.3

— means not available. [1] *SSB Communique*, 1982. [2] *FB*, 12/20/82, pp. K1-K14. [3] USDA estimate.

sons it rose in 1982. In 1982, central planners wanted to reduce the output of fertilizer coming from inefficient plants, which tend to be wasteful of scarce energy resources, and to transfer it to more efficient factories. While this policy was sound from an energy conservation point of view, it rested on the assumption that the fertilizer produced in the efficient factories could be transported effectively to those places where plants had closed. The policy also overlooked local interests in maintaining employment opportunities and concern over bureaucratic turf. When transportation bottlenecks made it difficult for farmers to pick up fertilizer supplies, local governments continued operating the inefficient plants rather than see local shortages of fertilizers, resultant decreases in yields, and failure to fulfill production targets.

Past investments in water control, which include irrigation and drainage projects, should increase China's ability to control potentially damaging runoff from typhoons and storms and should raise the capacity to make irrigation water available to farmers. Major investments in water control projects this year and in the next few years will be to support grain production. Irrigation and drainage systems will be improved in the following grain commodity bases: the Sanjiang area in Heilongjiang; Poyang Lake area in Jiangxi; Dongting Lake area in Hunan; and Pi-shi-hang area in Anhui province. Also, the use of improved seed varieties should boost yield prospects for cotton, corn, soybeans, and rice.

In 1983, China's leaders plan to rely heavily on changes in farm structure, added incentives for farmers, and improved management to elevate crop yields. Production responsibility systems, which tie farm household earnings closely to output, have been promoted since 1978. By the end of 1982, most farm households had begun to use the *baogan daohu* system. This tenant-type payment system spurs farmers to increase yields to earn the excess above contracted targets.

Government and Communist Party leaders plan to restructure the commune system in 1983. This system has been the fundamental rural organization unit for the past 25 years. It is scheduled to be drastically revamped and, in some local areas, eliminated. Part of the motivation for this restructuring is to create conditions in the commune system that will allow the *baogan daohu* to function more effectively. Government and administrative functions of the commune will return to hsiang (township) governments. The commune, brigade, and team entities in the commune system will become strictly cooperative enterprises. Some communes and brigade entities may be abolished. Part of the reason for separating political functions from economic affairs is that, often in the past, aggressive commune administrators implemented policies and programs that retarded or even damaged agricultural output and economic growth.

China's leaders also are in the midst of revamping the commercial system, which could provide even more incentives to farmers using baogan daohu. Restrictions on the kinds of goods entering rural markets have been relaxed, so households now can sell grain and oilseeds in village markets after they have fulfilled their contract obligations. Formerly, communes and farmers were restricted in the kinds of marketing arrangements they could use and were prevented from shipping goods across specified boundaries. These restrictions now have been lifted, and farmers can move crops and animals to markets nationwide, providing they obtain business licenses and pay certain taxes.

Also, the changes in the marketing system will likely open up more channels for households to purchase farm machinery, seed, and fertilizer. The inherent competition resulting from several sources of supply in rural areas will give farmers a better selection of inputs to choose from and also will help in the speedy delivery of inputs.

China's officials are counting on crop yields to go up in 1983 because they hope farmers responding to new incentives and working in reformed institutions will become more efficient in using fertilizer and other inputs. The increase in yields in 1981 and 1982 stem in part from these factors. There likely is still room for improvement in 1983, but the increase should begin to slow. To raise yields in future years, China must begin not only to improve farm management, but also must provide farmers with larger supplies of fertilizer and high-yielding seeds.

Good weather was an important factor in high yields and record crops in 1982. Since input supplies are not scheduled to increase greatly, weather again will be a very important factor to watch during the course of 1983.

Little Change in Grain Production

The steady decline in grain acreage should end, and area should rise about a million hectares. After several years of stressing the production of other crops, the Government has increased incentives to farmers to produce grain. Procurement prices for farm products have not been changed, but the incentive structure has. For example, the proportion of rapeseed that is eligible for the 50-percent-above-quota price has been reduced, which will make the growing of rapeseed less profitable than before and should improve prospects for growing grain. Moreover, grain procurement quotas have not been linked to yield increases. This policy should promote grain production because, as yields rise, increasing proportions of the crop will become eligible for sale at the 50-percent-above-quota premium price. In addition, rural commercial networks are supplying consumer goods and inputs, such as machinery and fertilizer, to major grain-producing regions on a preferential basis. The increase in grain area will be accompanied by a decrease in the area sown to cotton, rapeseed, and tobacco.

Overall grain yields, however, may drop this year, because weather in 1982 was much better than usual. A return to normal weather would reduce yields somewhat. Important offsetting factors, however, will be ongoing improvements in management and technology and better incentives for grain farmers. The changes in area and yields are largely offsetting, placing estimates of total grain production close to last year's record 353 million tons.

Wheat production should be up to 71 million tons because of increased area and improved yields. Winter wheat area, which accounts for about 85 percent of the total wheat area, increased 660,000 hectares according to Chinese reports. The crop was sown under favorable conditions. Autumn rains boosted soil moisture, and the crop was growing very well before it went into dormancy. Normal dry weather prevailed during the winter, but reservoirs are fuller and should have more water for spring irrigation than they did in 1982. Moreover, substantial portions of the major wheat-producing provinces had good rains this spring. Dry weather in May and June could hurt yields, but as of May 1, overall conditions appeared to be better than in 1982.

Rice area is expected to increase several hundred thousand hectares. Double-cropped rice area may rise slightly in 1983, after dropping steadily for the last several years. Hybrid rice area should expand again. Heavy rains during February and March in South China may reduce the output of early rice. Yields hit records in 1981 and 1982, so it may prove difficult for farmers to increase yields again. With expanded area and lower yields, a very good rice crop—but one below that of 1982's 161 million tons—is expected.

Coarse grain area will likely drop again in 1983, to an estimated 30.8 million hectares. The demand for coarse grains for human consumption probably is declining as urban and rural incomes have risen and consumers seek more preferred grains, such as wheat and rice. This decline in demand for coarse grains, however, is probably offset by the increasing demand for livestock feed. Higher corn yields will likely raise coarse grain yields above last year's record, and the total outturn is projected at a record 86 million tons.

Other Crop Prospects Mixed

Area of oilseeds, cotton, and tobacco should decrease in 1983, primarily because of the Government's renewed emphasis on grain production. The area diverted from these crops will be planted to grain crops. Yields of these crops will likely continue to rise in 1983.

The cotton outturn for 1983 is estimated at 3.6 million tons, about the same as last year because yield increases are expected to compensate for decreases in sown area. The area sown to cotton is expected to drop from 5.7 million hectares to about 5.6 million. Regional specialization will likely continue, with provinces in the Yangtze River Valley reducing cotton area and North China producers increasing area. However, Shandong province, the number-one producing province, plans to reduce cotton area 10 to 20 percent. The overall reduction of marginal producing area should nudge yields up further. The production responsibility system will likely encourage more efficient input use, also raising yields slightly. Larger areas will be sown with improved cotton varieties. A new variety, Zhongmiansuo No. 10, is gradually replacing Lumian No. 1—a high-yielding variety used primarily in Shandong province in the last several years. No. 10 is being used because it has better quality fiber and its growing season is short enough to allow North China growers to double-crop cotton with an earlier crop of wheat or rapeseed. Another new variety, cotton No. 321, has been developed and may become popular; it is resistant to both the major cotton diseases—fusarium and verticillium wilt.

The outlook for oilseed production in 1983 is for only a small increase in output. The area sown to rapeseed in fall 1982 declined nearly 700,000 hectares. Fall, winter, and early spring weather proved favorable for rapeseed growth, and yields should be about the same as in 1982. Peanut area should be about the same as last year, but yields could rise. Area sown to sunflowerseed should increase about 100,000 hectares, and yields are expected to rise above 1982's drought-stressed levels.

Preliminary estimates put the 1983 soybean crop at about 10 million tons, which is the highest level in many years. Area is expected to rise because of government policy measures, such as procurement price increases. Yields should recover from 1982's depressed levels, and they are expected to be equal to or greater than 1981 yields, providing weather in the North China Plain, and especially in the Northeast region, is normal.

Tobacco production in 1983 should drop sharply because of government policies. Sown area rose substantially in 1982, because of a procurement price increase. Also, some local authorities encouraged farmers to grow tobacco to supply local cigarette factories, which earned handsome profits. The central Government acted strongly to curb local profit-taking and has targeted lower flue-cured tobacco area for 1983, down from 980,000 hectares to 530,000. Moreover, the Government has decided that it will tax any above-plan purchases of tobacco and will reduce prices 15 to 20 percent for above-plan purchases. In addition, the Government declared that it will not purchase tobacco outside the regular procurement system. All national and local price increases and subsidies have been canceled, and grading standards will be rigidly applied in purchasing tobacco this year.

Meat Production Stressed

The Government will continue to stress increasing meat output rather than inventory numbers. Feed supplies should be adequate, but not abundant because of the drop in the 1982 soybean crop and the slight increase in coarse grain production. Rural and urban incomes will likely rise, but the demand for leaner pork will only be partially met, as livestock specialists try to develop new breeds of hogs that will flourish in China's environment but will also produce leaner meat.

The dairy industry is expected to grow continuously in the suburban areas of China's large cities. Likewise, confined poultry flocks will increase in these same areas. These developments will likely spur the growth of the compound feed industry.

Policies implemented in 1982 will have a substantial impact on meat output and livestock raising in 1983. First, procedural changes that allow farmers greater flexibility in marketing may increase the number of animals entering marketing channels and may cut down the time animals are kept on feed before they are marketed. Second, the plan to substantially expand cold storage capacity should assist in marketing and distribution of meat supplies. Third, the program to allow farm households greater freedom to raise their own fodder, obtain direct technical assistance, and raise and market their own animals on the basis of producing a greater gain with a smaller amount of feed could substantially boost production efficiency.

Agricultural Imports Down

China's policy to limit agricultural imports has been successful in the past few years. The value of agricultural imports fell about 25 percent, from 5.33 billion yuan in 1980 to 4 billion in 1982. Imports probably will decline again in 1983. Cotton and oilseed imports will drop further, and grain purchases may fall slightly. The drop in China's imports has substantially reduced U.S. farm shipments to China. The value of U.S. agricultural exports to China is expected to fall to about $850 million in 1983, 44 percent below 1982 and 63 percent less than 1980's record of nearly $2.3 billion.

In hopes of further limiting agricultural imports, China seems to be trying to raise domestic grain production while maintaining the output of other crops. But, even with good crops projected for 1983, grain imports will stay fairly high.

Total grain imports in 1983 may fall slightly from the 1982 peak of 15.6 million tons, to around 15 million. They are likely to remain relatively high because

demand growth will probably continue to be strong and improvements in the domestic grain transportation system will be slow. Growth of consumption, particularly of preferred grains, such as wheat and rice, has been quite rapid in recent years, as incomes have jumped substantially. Continued emphasis on policies that improve living standards by raising income will likely sustain accelerated demand growth for food grains for several more years. Also, plans in the next few years to increase the rate of expansion of modern livestock feeding operations in urban areas should keep demand for feed grains growing at a brisk pace. China's long-term purchase agreements with all its major suppliers suggest grain imports of 13 to 18 million through 1984. (Frederick W. Crook)

CHINA'S LIVESTOCK SECTOR: RECENT DEVELOPMENTS AND PROSPECTS FOR THE 1980's

The Structure of the Sector

China has one of the world's largest livestock sectors and is the leading producer of pork. Agricultural researchers, livestock producers, and traders in western countries have always been interested in China's livestock industry. Until recently, however, little has been known about the development of this sector because of the cutoff of statistics beginning in the late 1950's. As long as the livestock sector in China remained self-sufficient and largely traditional in nature, this lack of information was not critical to foreign analysts and traders. But, with policies now shifting in favor of increased livestock production, with the beginnings of a modern livestock sector now underway, and with the possibility that China may begin to require more imported feedstuffs to maintain the pace of development, knowledge about the sector takes on new importance.

Fortunately, the new flow of statistical data from China in the last several years has included a significant amount of information about the livestock sector. This new information permits us to identify the major features of China's livestock industry, to describe and quantify the changes that have taken place in the last several years, and to roughly assess the current state and likely future of feed use.

The picture that emerges from this analysis is still incomplete. Most noticeably, there is still very little information on poultry production, which remains largely a household backyard activity about which the Government collects very little data. Nonetheless, a fairly comprehensive picture of the development of hog and large animal production is now possible.

This analysis suggests that during the 1980's, China may have to gradually increase imports of feed grains and protein meal. However, it also suggests that the major barriers to continued rapid progress are not feed supplies per se, but the entire research, extension, pricing, processing, and distribution infrastructure.

Characteristics Of China's Livestock Sector

Livestock production is one of the five major components of China's agricultural sector and, as defined by the State Statistical Bureau, is the feeding of animals, including the ones put out to graze, but excluding all fishery production. The significance of livestock raising to China's crop-dominated agriculture has changed little over the years. The important contributions of the livestock sector are listed below.

- Animal products, such as meat, milk, and eggs, provide high-quality protein that is particularly important because of the population's traditionally low-protein diet.
- Like other developing countries, draft animals—mainly water buffalo, yellow cattle (all Chinese native cattle), and horses—provide a great portion of the power needed in farming and transportation.
- Livestock manure, particularly from hog production, constantly adds large amounts of nutrients to China's soils, much of which are potassium and phosphate deficient. This is still the case, even though use of chemical fertilizers, almost all nitrogen, has risen rapidly in recent years.
- Sales of animals raised by commune households as family sideline production provide an important source of income.
- Livestock production supplies raw materials for China's processing industry.
- International sales of livestock and livestock products, such as bristles, animal hides, and rabbit meat, help to earn foreign exchange. Exports of live animals and livestock products reached $1.85 billion in 1980 and accounted for 10 percent of China's total export value for that year.

Livestock Regions

Since China is a big country, livestock raising, like growing of crops, varies from place to place depending on factors such as natural endowment, population density, farming systems, and income levels. China's agricultural area can generally be divided into two distinct regions, grazing and farming. These two regions are generally differentiated by their geographical features, such as climate, soil types, and structure, and by availability of animal feed. The six northwestern provinces—Gansu, Nei Monggol, Ningxia, Xinjiang, Qinghai, and Xizang—roughly form the "grazing region," and the rest of the provinces the "farming region." This delineation is not ideal; Sichuan, for example, is important both as a grazing and a farming region. Nevertheless, the delineation roughly illustrates the common natural characteristics of the regions.

The grazing region, although consisting of only 6 of China's 29 provinces, autonomous regions, and municipalities, possesses more than half of China's total land area (table 5). Cropland, however, is only 9 percent of the

Table 5.—Features of livestock regions, 1979[1]

Item	Grazing region[2]	Farming region[3]
	Percent of national total	
Land area	54.5	45.5
Area sown to crops	8.8	91.2
Total population	6.1	93.9
Hogs	4.0	96.0
Large Animals	28.0	72.0
Cattle	25.0	75.0
Horses	36.7	63.3
Mules	41.6	58.4
Donkeys	20.5	79.5
Camels	99.7	0.3
Sheep	69.8	30.2
Goats	28.9	71.1
Pork output	3.0	97.0
Beef output	41.4	58.6
Mutton output	51.5	48.5

[1]All percentages were calculated from statistics published in the *China Ag Yearbook*, 1980, except (1) land areas were from *BR*, Vol. 26, No. 1, Jan. 3, 1983, and (2) the 1981 population was used and was from *China Stat Yearbook*, 1981. [2]Includes Gansu, Nei Monggol, Ningxia, Qinghai, Xinjiang, and Xizang. [3]Includes the rest of the provinces not listed in footnote 2.

national total. Farmers in the grazing region predominately raise pasture and range animals, such as horses, sheep, camels, and cattle. In contrast, producers in the farming region concentrate on hogs. Large animals raised in the farming region, such as water buffalo, horses, and mules, are mainly for field preparation work and for hauling activities.

In the farming region, Sichuan has been the number-one hog producer in terms of yearend numbers and annual pork output in recent years, contributing about 14.5 percent of national pork output in both 1979 and 1980 (table 6). Other important pork producing provinces include Jiangsu, Hunan, Shandong, Guangdong, Zhejiang, and Hubei. These seven provinces produced a combined total of more than 55 percent of national pork output in 1979 and 1980. In the grazing region, Nei Monggol was the province that produced the most ruminant meat, even though it was second to the Sichuan province in yearend cattle numbers. Other major producers of ruminant meat are Xinjiang, Qinghai, and Sichuan.

Ownership of Livestock

Private ownership of various kinds of animals reportedly has been growing since 1979, after the Fourth Plenary Session of the 11th Chinese Communist Party Central Committee approved a document entitled "Some Questions Concerning the Acceleration of Agricultural Development." The document specified that private or family raising of livestock should be vigorously encouraged. Latest statistics indicate that over 90 percent of all hogs in China were raised by commune members in 1980, up from 85 percent in the previous year. However, most grazing animals are collectively owned. In 1982, commune households raised about one-half of all sheep and goats, an increase of 32 percent from the ratio reported in 1979, but in 1980, commune members owned only 12.2 percent of all cattle. In the past, large animals were mostly owned by collectives because of their use as means of production. The ratio of private-owned large animals, particularly cattle, is expected to grow in coming years because of the implementation of production responsibility systems in rural areas. Since last year, Chinese reports have indicated the transfer of ownership of draft animals from collectives to individual households in many rural areas.

Feed Use and Manufacturing

Statistics on the amount of grain fed to livestock are unavailable. A recent Chinese article on grain production strategies revealed that the total amount of grain fed to livestock was about 50 million tons in 1980. Of the 50 million tons, about 35 million were either grains withheld by production teams for livestock feed use or grains awarded by the State for sales of fattened hogs to the government procurement system. The remainder, 15 million tons of various kinds of grain, was provided by private-plot output and surplus food grain rations. Given this information, along with an assumption that 92 percent of the grain was fed to hogs, it can be estimated that only about 150 kilograms were fed per hog in 1980. This average is far less than the amount used to bring hogs from farrow to finish in the United States. With the limited quantity of grains fed to hogs, it is apparent that hogs in China consume a large amount of other feedstuffs, such as water plants, vegetables, tubers, crop residues, and scraps from household meals.

Sheep, goats, and large animals usually are fed very little grain. Dairy cattle require more grain, but the total number of dairy cows was only 641,000 head in 1980 and about 700,000 in 1981.

Use of protein meal in livestock feed has not been extensively promoted in China. Reportedly, China uses more than half of its total cakes and residue of soybeans and oilseeds as fertilizer. Part of the reason for the low use rate is the lack of the technology needed to process and eliminate toxic substances in some oilseeds, particularly cottonseed.

In addition to oilseed cakes and residue, China also produces other protein feed supplements, such as fish meal, mineral supplements such as powdered calcium and phosphorus, and micro-elements. However, production of this kind of feed supplement is low—estimated at about 350,000 tons in either 1980 or 1981. Considering all available information on protein supplement output, it can be concluded that the total amount of protein feed used in livestock production is very low.

China's compound feed manufacturing has also developed slowly. By the end of 1981, output capacity was targeted to reach 2 million tons, about 4 percent of the total grain fed in the country. Actual compound feed production, however, was only about 1.75 million tons. China plans to rapidly expand its feed manufacturing industry to meet increasing demand. A national animal feed conference held in Beijing in April 1982 called for compound feed output to increase from the current level of about 2 million tons annually to 6 or 7 million by the end of 1985.

Production Facilities and Technology

Most livestock in agricultural areas are generally kept in drylot or covered shelters. Draft animals are usually assigned to commune households, who keep them in enclosed areas. Dairy herds are usually kept in buildings run by communes or state farms and often are close to large cities. Dairy farms often employ drylot systems, including exercise yards, open-sided sheds, and stanchion-type milking barns. Bunker or trench-type

Table 6.—Livestock numbers and products by province, 1979[1]

	Hogs	Large domestic animals	of which: Yellow cattle	of which: Water buffalo	Goats	Sheep	Total red meat[2]	Pork
			1,000 head					*1,000 tons*
Northwest								
Heilongjiang	7,983	2,739	1,010	—	221	2,236	363	349
Liaoning	11,889	2,839	1,321	—	314	1,357	341	333
Jilin	5,857	2,343	1,087	—	114	1,379	205	198
North								
Shandong	21,176	3,441	2,153	56	6,243	3,015	729	707
Hebei	13,522	3,469	1,263	—	4,159	3,129	342	327
Beijing	2,468	310	83	—	488	85	114	112
Tianjin	1,008	224	42	—	181	85	54	52
Henan	15,923	5,215	3,076	311	7,287	3,791	530	500
Shanxi	5,586	2,225	1,071	—	5,562	3,646	139	129
Northeast								
Shaanxi	8,223	2,451	1,723	29	4,711	1,782	198	189
Gansu	4,400	3,726	2,091	—	3,223	7,903	129	113
Nei Monggol	5,546	6,853	3,399	—	7,835	18,488	208	115
Ningxia	649	555	182	—	1,171	2,025	16	12
Xinjiang	1,037	4,671	2,296	—	3,718	16,429	107	32
Qinghai	763	5,565	4,880	—	1,664	14,296	75	21
East								
Zhejiang	15,500	848	423	411	1,067	2,389	569	560
Jiangsu	23,561	1,204	361	687	5,010	1,147	946	920
Shanghai	3,424	61	3	34	311	141	194	192
Anhui	11,319	2,644	1,090	1,078	2,781	850	509	483
Central								
Hubei	17,488	3,368	1,764	1,487	1,659	116	532	519
Hunan	21,205	3,297	1,587	1,696	874	3	775	768
Jiangxi	10,047	2,121	1,139	976	95	10	302	294
South								
Guangdong	20,095	3,832	1,309	2,506	408	—	624	615
Guangxi	11,030	4,332	1,944	2,207	872	3	374	366
Fujian	6,988	995	564	422	688	—	209	205
Southwest								
Sichuan	50,922	9,477	5,759	3,333	7,212	3,709	1,502	1,441
Guizhou	8,751	4,158	2,451	1,237	1,782	292	228	219
Yunnan	13,098	6,548	3,598	1,907	5,249	1,772	259	240
Xizang	247	5,080	4,742	—	5,675	12,490	51	2
Total	319,705	94,591	52,411	18,377	80,574	102,568	10,624	10,014

—none or negligible.

[1]Number at year's end. [2]Includes pork, beef, and mutton.

Source: *China Ag Yearbook*, 1980, pp. 119-124.

silos are usually used, with upright silos on some farms.

Hogs that are owned and finished for slaughter by commune families either run free or are kept in small pig sties that are partially roofed and hold one to a few hogs. Finishing units on commune and state farms are bigger and are usually enclosed buildings with access doors to paved lots. Feeding is often done manually in outside pens. In commune or state farms, there are some technically advanced finishing units with partially slotted floors, mechanical distribution of feed, automatic waterers, and electrically powered fan ventilation. These finishing units are in some ways similar to the full confinement facilities seen in the United States. The exact number of this type of unit is not known, but they handle only a fraction of the 9 or 10 percent of China's hogs that are presently raised on communes or state farms.

The Marketing System

China's livestock are usually sold through either the government procurement system or local rural markets after a slaughter permit is granted. For example, in 1979, the latest year for which statistics are available, nearly 70 percent of all slaughtered hogs and about 50 percent of slaughtered sheep and goats were marketed through the state purchasing system. The balance was slaughtered locally and consumed on-farm or sold through local rural markets. A small portion of live animals, hogs, and cattle procured by the Government are for export. About 2.5 million live hogs and 150,000 cattle are shipped to Hong Kong annually.

Both procurement prices of livestock and retail prices of meat are tightly controlled by the central and local

governments. In general, the government procurement system does no grading, especially if compared with the standards used in the United States, and hence, there are no quality-based price differentials. There are neither significant price differentials among regions nor seasonal variations in procurement prices.

A Comparison of U.S. and Chinese Livestock Production

Despite having one of the largest livestock industries in the world, China's production of livestock and products is less than one-fourth of the value of the output of its crop sector. Table 7, which illustrates the information on the current state of China's livestock production, along with the corresponding U.S. statistics, shows in part the lag in China's livestock program. The data clearly indicate the inefficiency of China's livestock production, particularly with respect to meat output relative to the huge yearend inventory of various kinds of animals. The length of time required to feed hogs from farrow to finish is another indication of the low feeding efficiency of slaughter hogs. Finally, the low dressing rate for slaughtered hogs suggests vast potential for improvement in hog breeding and feeding. This potential is also demonstrated in data presented later in this article on ratios of lean meat to carcass weight.

Table 7.—A comparison of U.S. and Chinese livestock sectors

Item	1980	
	China	United States
Ratio of value of livestock and livestock products over value of all crops	18.1/81.9	48.5/51.5
Yearend inventories (mil. head)		
Hogs	305.4	67.4
Cattle	71.4	111.2
Dairy cows	0.6	10.9
Sheep and goats	187.3	14.2
Animal product output (mil. tons)		
Red meat	12.1	17.6
Pork	11.3	7.5
Beef	0.3	10.0
Mutton	0.4	0.1
Poultry	[2]1.0	6.6
Cow milk	1.1	58.3
Per capita consumption (kg)		
Red meat	[2]12.3	72.6
Poultry	1.0	27.7
Eggs	2.5-3.0	15.7
Milk	1.4	103.2
Hog production		
Farrow to finish (month)	18-24	6
Slaughter rate (percent)	62	143
Slaughter weight (kg)	[3]93.8	110.0
Dressed weight (kg)	[3, 4]53.4	78.7
Dressing rate (percent)	57.0	71.5

[1]Rough estimate by Chinese officials. [2]Per capita meat availability is used for per capita consumption. [3]1979 statistics. [4]Average net meat yield per hog is used. The comparability with dressed weight as reported in the United States is not known precisely. However, comparisons appearing in Chinese literature imply that the definitions are similar.

Growth in Recent Years

During the two decades prior to 1979, private production of livestock was generally discouraged. Starting as early as the end of 1978, China's livestock program shifted to emphasize and expand household raising of livestock, particularly finishing hogs for slaughter. In addition, higher live animal procurement prices, bonuses awarded for raising fat hogs, changes in the statistical indicators used to measure the performance of the livestock sector, and expansion of private plots in rural areas have all contributed to the rapid growth of livestock production in recent years, especially meat output. Beginning in 1980, pork was no longer rationed in most parts of China. Over the past few years, the annual total value of livestock output has steadily increased, and the share of livestock production in the annual GVAO also has expanded gradually.

Production Up Substantially

Since the late 1970's, China's livestock sector has generally made impressive progress in increasing animal inventories as well as meat output. The growth of overall livestock production was particularly rapid in the late 1970's, but growth rates gradually slowed after 1980. This can be partly illustrated by the changes in yearend inventories of major livestock categories (table 8). As shown in table 8, hog numbers actually declined starting from 1980. The decline was mainly due to farmers' difficulty in selling more hogs to the state procurement system and lower incentives for raising hogs.

Relatively rapid development in draft cattle numbers beginning in 1981 is an indication of the impact of the recently imposed production responsibility systems in rural areas, especially in southern China, where further agricultural mechanization has been put off indefinitely. The growth of the total number of sheep and goats shows the rate of increase in annual inventory numbers peaking in 1979 and slowing thereafter. Although goat numbers declined in 1981, milk goat development has reportedly been emphasized in the last several years. Milk goats numbered over 2 million in 1980. Shaanxi and Henan provinces produced nearly 85 percent of China's 8,000 tons of goat milk powder output that year.

The Government raised livestock procurement prices sharply in 1979. A good way to measure how increases in procurement prices affected the livestock marketing pattern is to compare changes in the total number of animals procured through the government system with changes in total animals slaughtered. Unfortunately, total slaughter numbers for various kinds of livestock other than hogs are unavailable. An alternative measurement is to examine changes in the ratio of the number of livestock procured to total inventories. Table 9 lists procurement rates for hogs, cattle, and sheep and goats for the years up to 1979, the latest year for which statistics are available. In general, the number of animals marketed annually through the government system has been low, especially in the case of ruminant livestock. However, the 1979 data suggest that there was only a positive response to the higher pork procurement prices.

On top of the growth of livestock inventories and the increase in government purchases of live animals, total meat output has grown continuously since 1977 (table 10). Given the rapid increase in meat output, per

Table 8.—Livestock yearend inventories

Item	1952	1965	1975	1976	1977	1978	1979	1980	1981
					Million head				
Hogs	89.77	166.93	281.17	287.25	291.78	301.29	319.71	305.43	293.70
Large animals	76.46	84.21	96.86	94.98	93.75	93.89	94.59	95.25	97.64
Draft animals	51.42	43.22	51.22	50.42	49.79	50.23	50.29	50.88	54.71
Cattle	56.60	66.95	73.55	71.69	70.40	70.72	71.35	71.68	73.30
Horses	6.13	7.92	11.30	11.44	11.45	11.25	11.15	11.04	10.97
Mules	11.81	7.44	8.13	77.66	76.30	7.48	7.47	7.75	8.42
Donkeys	1.64	1.45	3.35	35.36	37.15	3.87	4.02	4.17	4.33
Camels	0.29	0.45	0.54	0.55	0.56	0.57	0.60	0.61	0.63
Sheep	36.88	78.26	95.33	92.71	93.53	96.40	102.57	106.63	109.47
Goats	24.90	60.77	68.04	65.46	67.83	73.54	80.57	80.68	78.26

[1]Source: *China Stat Yearbook*, 1981.

Table 9.—Livestock procured by the Government as compared with yearend animal inventories

Year	Hogs	Cattle	Sheep and goats
		Percent	
1952	5.7	0.9	2.7
1957	25.3	3.4	5.2
1962	17.8	1.0	7.3
1965	47.1	1.9	9.1
1970	36.8	—	7.7
1975	36.6	2.5	6.5
1977	35.4	2.0	5.8
1978	36.0	1.9	5.6
1979	40.7	2.3	6.2

—Not available.

Source: *China Ag Yearbook*, 1981, p. 364.

Table 10.—Meat output—total and per capita availability

Year	Meat Output				Per capita meat availability[1]
	Pork	Beef	Mutton	Total	
		1,000 tons			*Kilograms*
1952	—	—	—	3,385	5.9
1957	—	—	—	3,985	6.2
1962	—	—	—	1,940	2.9
1965	—	—	—	5,510	7.6
1970	—	—	—	5,965	7.2
1975	—	—	—	7,970	8.7
1976	—	—	—	7,805	8.4
1977	—	—	—	7,800	8.3
1978	7,890	310	360	8,563	8.9
1979	10,010	230	380	10,624	10.9
1980	11,341	269	445	12,054	12.3
1981	11,884	249	476	12,609	12.7
1982	12,718	266	524	13,508	13.3

— Not available.

[1]Includes those exported.

Source: All meat output figures are from *China Ag Yearbooks*, 1980 and 1981, except the 1982 figures, which are from the *SSB Communique*, 1982.

capita meat availability also rose substantially in the last few years. In 1977, for example, the amount of meat available per person was only about 10 percent above that of the mid-1960's. By 1982, however, per capita meat availability had risen 60 percent from 1977. Pork production contributed almost all the increase during the last several years. Currently, the share of pork output stands at over 94 percent of total meat production.

In value terms, the growth of livestock production averaged an annual rate of 7.5 percent between 1977 and 1981, larger than the average annual growth rate of GVAO (5.3 percent) for the same period. The annual contribution of livestock production to GVAO, however, is still low (table 11).

Major Policy Changes

The impressive progress in livestock production in the last few years was largely due to the modification of livestock policies. The major changes of China's livestock program can be summarized as follows:

- *Policy liberalization*—Liberalized policies on livestock raising, such as elimination of restrictions on commune members raising livestock and the revival of livestock trading markets, has contributed to the upsurge in yearend livestock inventories, as well as to greater private feeding of hogs, cattle, sheep and goats, rabbits, and poultry in recent years.
- *Higher procurement prices*—Increased procurement prices for livestock and products in November 1979 dramatically stimulated sales, particularly of hogs, to the Government. The average procurement price of live hogs rose to 125.06 yuan per 100 kilograms in 1979, from 98.92 yuan in 1978, an increase of more than 26 percent. Likewise, the price for beef rose from 132.60 yuan to 184.84, a 39.4-percent rise; for mutton, from 153.02 yuan to 205.08; and for chicken eggs, from 98.92 yuan to 125.06.

Table 11.—GVAO and the annual output value of the livestock sector[1]

Year	GVAO	Value of livestock production	Percentage of livestock production value to GVAO
	Billion yuan		*Percent*
1977	118.90	18.34	15.4
1978	128.89	19.30	15.0
1979	140.43	22.12	15.8
1980	139.07	23.10	16.6
1981	146.20	24.50	16.8

[1]All values are in 1970 constant prices. The GVAO used in the table excludes production generated by the rural brigade- and team-run industries.

Source: Various SSB publications.

- *Changes in performance indicators*—New statistical reporting items, such as various annual meat output figures, have been added to the old indicators. In the past, basically only yearend inventories were reported. The new additional data have helped livestock producers to increase emphasis on producing more meat instead of focusing on bigger yearend inventories. The change has also likely led production units to pay more attention to the costs of production, the ratio of breeding stock to animal population, the quality of livestock products, and the adoption of better breeds.
- *Specialized household production units*—New policies permit some commune households to specialize in raising livestock. This has not only encouraged livestock production by commune members, but also has helped in the development of livestock feeding operations run by collectives and state breeding farms. There are two types of specialized livestock households. One has branched off from sideline occupations of commune families. The previous sideline production has now become a principal activity. The second type is households specializing in the feeding of animals, such as cattle and poultry, which were contracted by collectives or state livestock breeding farms. The first type is usually found in suburbs of larger cities, and the second type is generally located in rural areas. Advantages of both kinds of specialized households are: (1) fuller use of surplus labor in rural areas, (2) higher commercial or procurement rates, (3) more independent production activities and decisionmaking by households, and (4) greater incentives since specialized households are solely responsible for their own profits and losses.
- *Expanded private and fodder plots*—Regulations now allow expansion of private plots and fodder plots up to a maximum of 15 percent of total cultivated land, which permits commune members to grow more feed for livestock. This policy was especially designed to raise incomes in poor regions. Historically, private plots have been the main base for household sideline production. The relaxation of private plot controls has stimulated both diversification of rural production and household livestock output.

Problems of China's Livestock Programs

China's livestock programs face a diverse set of problems. Some of the problems have arisen from the new policies; others are longstanding. In general, these problems can be categorized as institutional, economic and managerial, or scientific in nature.

- *Institutional problems*—Frequently, changing policies have been the greatest concern for communes and households raising livestock, especially hogs. The enthusiasm of commune families for raising livestock increased greatly after the procurement prices for livestock were raised in November 1979. However, the situation did not last long. Limited storage capacity and the lack of transportation facilities led procurement agencies in many provinces to eliminate bonuses for sales of heavily fattened hogs, to lower procurement quotas, and to reduce bonus grain rewards for selling slaughter hogs. Many procurement stations even turned down commune members who wanted to sell hogs. Those who failed to sell fattened hogs to the Government had to turn them over to local butchers after a slaughter permit was granted. These farmers then had to sell the carcasses in nearby rural markets and usually earned less profit because of lower market prices and lost bonuses. As a result, the yearend inventory of hogs declined after 1979, and the size of breeding herd also started shrinking. The decline in the number of breeding sows and boars was also partially caused by the structural transformation of hog production in rural areas. As more hog-raising activities were gradually transferred from collectives to individual households, the task of raising and maintaining a proper proportion of sows and boars, formerly only a collective activity, was not well planned. The above-mentioned problems actually occurred because of the implementation of new policies. Generally, the problems reflect the failure to fully analyze the implication of the structural changes.
- *Economic and marketing constraints*—Deficiencies in China's marketing system were a major reason leading government procurement stations to limit their purchases of live animals in 1980. Latest information indicates that only about 70 percent of all slaughter hogs, 55 percent of beef cattle, and about 32 percent of sheep were marketed through the government system. For example, since pork constitutes most of China's total red meat output, a better hog marketing system and improved pricing practices could help to solve the distribution problem that leads consumers in some parts of China to complain about inadequate meat supplies while farmers in other areas cannot market what they produce. An improved system therefore would alleviate the constraints that have hindered the rate of growth in livestock production.
- *Scientific and research requirements*—Low dressing rates of livestock and shifts in consumption patterns to better quality livestock products require an urgent expansion of research on feeding and breeding programs. China reported that, in 1979, the net meat yield for each head of hog, cattle, and sheep averaged only 53.5, 77.5, and 11 kilograms, respectively. The averages are extremely low, with those of hogs and cattle being only about 75 and 40 percent of U.S. averages, respectively. This generally implies that there is much room for improvement in the dressing rate.

  As pork supplies increased, consumer preferences started to shift to leaner meat, especially in larger cities where incomes are higher. According to a survey conducted in Beijing in 1981, 80 to 90 percent of consumers buying pork in larger markets asked for lean meat. In ordinary meat markets, the survey indicated that 60 to 70 percent of pork buyers would like to buy lean meat.

  Native hog breeds, however, are poorly suited to these new preferences. The percentage of lean meat to total carcass weight ranges from 35 to 45 for most of China's native breeds. This is very low as compared with an average of over 60 percent for grade A carcasses in the United States. China's Ministry of Agriculture, Animal Husbandry, and

Fisheries (MinAg) recently reported that even China's improved hog breeds—such as Xinjin, Beijing Black, and Shanghai White—produce only an average lean meat ratio from 46 to 52 percent. MinAg also indicated that, since the 1960's, hog breeding has not made much progress in terms of increasing lean meat production. As an example of the best of what has been accomplished to date, some of the cross-bred hogs now raised in Hubei province reportedly produce an average lean meat ratio of between 53.5 and 55.1 percent. Given this low ratio, it is evident that China will have to vigorously develop new breeds, improved feeding programs, and better management practices to meet consumer preferences in coming years.

To increase ruminant meat production, progress in animal breeding, as well as development of pastureland, including research on varieties of grasses, pasture production, and management, will be important. In the past, the slow development of grassland was one of the main factors that hindered ruminant production. Given the estimate of more than 267 million hectares of usable grassland in China, a better planned program to raise more ruminant animals would lessen the high demand for concentrates required by full confinement production of hogs and poultry. The program would also diversify China's meat production pattern and meet consumer demand for beef and mutton.

Outlook for the 1980's

With the problems previously described, China's livestock production during the 1980's is unlikely to repeat the rapid growth achieved at the end of the 1970's. This is because most of the problems or constraints cannot be solved in a short period of time. Plans for building up cold storage capacity, improving grassland management, and expanding the feed industry—together with more favorable policies, such as specialized livestock-raising families and comprehensive rural diversification programs—will contribute to the continued growth of overall livestock production, but at a slower rate similar to that of the early 1980's.

Plan Targets for 1985 and 1990

The first plan target for meat output in the 1980's, 15 million tons by 1985, was included in a 1978 version of the 10-year Economic Plan (1976-1985). This target was revised downward to 14.6 million tons in the Sixth 5-Year Plan (1981-85). The 1990 goal for 18 million tons, given to the USDA Economics and Statistics Delegation in 1980, is still the only plan target thus far for 1990.

Although China's planners did not specify the composition of the 1985 and 1990 meat output targets, pork is expected to provide the bulk of the increase. China's total red meat output increased more than 50 percent between 1977 and 1981; nearly 99 percent of the gain was pork. Ruminant meat will slowly increase, however, since China has included a target for well-managed grassland—6.7 million hectares for 1985, more than triple the 2.1 million reported in 1980.

The latest information from China indicates total meat output reached 13.5 million tons in 1982. Given this, China will only need an average annual growth rate of 2.6 percent to surpass the revised 1985 target. Judging from the outcome of the last 3 years, China's livestock sector should reach this goal. The inventory of hogs and the number of breeding sows have reportedly been built up again in many provinces. China's livestock numbers, particularly hogs, are expected to increase at a slowing rate for several years and then to gradually stabilize.

The tentative 1990 meat target of 18 million tons can be attained with an annual growth rate of 4.3 percent beyond the year 1985. This growth rate appears feasible only if China energetically promotes ruminant meat production. For hogs, breed improvement holds tremendous long-term potential, but for this decade, growth in pork production will be closely linked to increases in use of grain and protein meal. Given no significant increase in inventory numbers, gains in meat production will have to come from more rapid weight gains, resulting in heavier animals and higher slaugther rates, and a higher dressing rate.

Grain and Protein Meal Requirements

Given the revised 1985 and the 1990 meat production targets, the interesting questions are how much additional grain and protein meal will be needed to meet the targets and whether China will be able to provide these requirements. To estimate the requirements by using any sophisticated statistical method is currently not feasible because of limited data availability. A rough estimating procedure based on currently available information provides an alternative way to assess the quantities of grain and protein meal that will be required.

As shown in table 12, 1980 is used as a base year for projections of the grains and meal needed for 1983-85 and 1990. The year 1980 is used largely because more information and official data for the year can be pulled together. The conversion rates of grain and protein meal listed for 1980 livestock production are estimates; all other figures are either official statistics published by the SSB or derived from Chinese reports. Values for subsequent years are judgmental adjustments of base-year figures.

The most recent information indicates that about 50 million tons of various kinds of grains were fed to livestock in 1980. This is about 16 percent of 1980 grain production. Using this figure as a base, along with an assumption that 92 percent of the total feed is fed to hogs, the grain/pork conversion ratio is estimated at 4.04 to 1. This ratio is close to the 4 to 1 conversion ratio often cited in Chinese reports. Assuming the remainder of the feed was fed to ruminants, the grain/ruminant meat conversion ratio is estimated at 5.6 to 1, also close to the 6 to 1 ratio cited in Chinese reports.

The quantity of protein meal that China uses in feeding livestock is also unclear. China reportedly uses more than half of its total oilseed cakes and residue as fertilizer. Given this information, and assuming that 35 percent of meal production is used for feed and that 95 percent of the total protein meal fed goes to hogs, a rough estimate indicates that only about 0.23 kilograms of 44 percent protein feed is used to produce 1 kilogram of pork. In the same vein, only 0.19 kilograms of the same protein-equivalent feed is used per kilogram of ruminant meat. This inadequacy of protein meal is one of the major reasons why the length of time needed to raise hogs from farrow to finish can be as much as 18 months to 2 years. It also hinders the development of lean meat supplies.

Table 12.—Projections of grain and meal requirements[1]

Item	Base year	Projection years			
	1980	1983	1984	1985	1990
Yearend hog inventories (mil. hd.)	305.43	302.0	303.0	304.0	307.0
Slaughter rate (percent)	62.12	69.0	70.0	71.5	81.5
Ave. live weight per hog (kg)	100.2	110.0	111.0	111.0	112.0
Dressing rate (percent)	57.0	57.6	57.8	58.0	59.0
Pork output (mil. tons)	11.341	13.159	13.563	13.948	16.534
Pork/meat ratio (percent)	94.08	94.1	94.0	93.9	91.5
Total meat (mil. tons)	12.055	13.984	14.429	14.854	18.069
Ruminant meat (mil. tons)	0.714	0.831	0.866	0.906	1.535
Grain conversion rate					
Hogs	4.041	4.125	4.150	4.200	4.400
Ruminants	5.581	5.800	5.900	6.000	6.500
Total grain fed to livestock (mil. tons)	48.818	57.955	59.889	61.696	77.162
Increment over 1980 (mil. tons)		8.137	10.021	11.877	27.344
Meal conversion rate					
Hogs	0.226	0.350	0.400	0.450	0.700
Ruminants	0.1895	0.250	0.275	0.300	0.400
Total meal fed to livestock (mil. tons)	2.692	3.289	3.460	3.646	5.707
Increment over 1980 (mil. tons)		0.597	0.769	0.954	3.016

[1]Meal used is 44 percent protein equivalent.

Before calculating the estimates of grain and protein meal requirements, a set of carefully assumed numbers, including gradual increases in hog inventories, slaughter rates, the average live weight per hog, and dressing rates, as well as a slow decrease in the pork-to-total meat ratio, is given for the years 1983-85 and 1990. For example, the slaughter rate is assumed to increase to about 82 percent by 1990, a level below the 90-percent figure targeted by China's officials. A 90-percent slaughter rate by the end of the decade is unlikely because of China's limited feed supplies. However, the total meat output projected for 1985 and 1990 is fairly close to the plan targets.

Feed conversion rates for grain and meal for the projection years are also assumed to gradually rise, with the 1990 rates reaching approximately the same rates as Japan's livestock production in the mid-1970's. The gradual rise of feeding rates, as grain and protein meal displace bulkier feeds, should allow China's livestock sector to slowly increase slaughter rates, dressing rates, and average live weights.

Given this set of assumptions, the results generated from the estimating procedures indicate that, for 1985, approximately 12 million additional tons of feed grains and 1 million of protein meal will be required above the 1980 level. These additional requirements are perhaps 25 and 30 percent of the likely increment in grain and meal production, respectively, for the same period. The growing use of grains and meal for feed should leave adequate supplies for food use, industrial needs, and additions to stocks.

Looking further into the 1980's, the picture is somewhat different. The estimates for 1990 show that the amount of grain used for feed will jump to 77 million tons and that use of protein meal will climb to 5.7 million tons. These increases suggest that, compared with 1980, livestock will require 27 million tons more of feed grains and 3 million more of protein meal. The magnitude of the increases will bring difficulties because grain for feed use will compete with grain for human consumption and industrial needs. The meal required for feed will compete with meal for fertilizer use. This analysis suggests that, toward the end of this decade, China may have to gradually increase its feed grain imports and perhaps begin to import meal significantly if meal used for fertilizer is to be maintained and if the meat output target is to be met.

These projections do not explicitly incorporate developments in poultry production because data on poultry are extremely fragmentary. Reportedly, China has already started building large-scale poultry farms around big cities. If this development is vigorously promoted, there could be significant expansion in the sector within relatively few years, resulting in further increases in grain and protein meal use.

Conclusions

While recent progress has been impressive, China's livestock sector now faces problems similar in many respects to those faced in earlier years by other countries. Recent government policies helped livestock production in China, particularly pork output. However, as incomes continue to rise, consumer preferences, especially in larger cities, are shifting to higher quality livestock products, such as leaner meat. Native varieties of hogs and cattle are unsuitable for the requirements of a modernizing system. Imports of foreign hog and cattle breeds for herd improvement will be an important measure to produce quality products that can better meet consumer needs. Furthermore, China's feed supply and livestock feeding methods will not be adequate to maintain the same rate of growth as in the past several years.

The analysis of this report concludes that, toward the end of this decade, China may have to gradually increase its feed grain imports and probably start to import meal significantly if the pace of growth in livestock production is to be maintained. Finally, the entire marketing

system—including storage, pricing, processing, transportation, and distribution—is also in need of modernization. Foreign technology associated with feed manufacturing, livestock feeding, and animal veterinary medicine will be critical to overcoming these inadequacies, as will the expansion of China's research and extension efforts in all aspects of the livestock sector. (Francis C. Tuan)

Table 13--Economic indicators, by calendar year 1978-82

	1978	1979	1980	1981	1982
			Million yuan		
Gross value of: 1/					
Agricultural output	145,900	158,400	162,700	172,000	190,890
Industrial output	423,100	459,100	499,200	519,900	559,900
			Millions		
Population 2/	962,200	975,000	986,900	1,000,720	1,015,000

1/ Constant 1970 prices.
2/ Yearend data excluding Taiwan.

Sources: Gross value data for 1978-81 are from China Stat. Yearbook, 1981, p. 17. Gross value for 1982 and population for 1981 and 1982 are from the 1982 SSB communique; USDA converted these to constant 1970 prices. Population figures for 1978-80 are estimates by the Bureau of Census, Department of Commerce, in which yearend SSB data are adjusted based on China's 1982 census. these figures now include armed forces personnel.

Table 14--Sown area, yield, and production of grains, 1978-82 1/

Grain	1978	1979	1980	1981	1982
			Million hectares		
Sown area					
Wheat	29.18	29.36	28.90	28.31	27.70
Rice	34.42	33.87	33.40	33.30	33.10
Coarse grains	33.50	33.10	32.30	31.10	31.00
Corn	20.00	20.20	19.30	19.43	19.30
Sorghum	3.50	3.20	3.20	2.61	2.60
Millet	4.30	4.20	4.20	3.89	3.90
Barley	4.20	4.00	4.10	3.80	3.80
Oats	1.50	1.50	1.50	1.37	1.40
Tubers	11.80	10.95	10.15	9.62	8.95
Others 2/	11.69	11.98	11.73	12.63	12.25
Total 3/	120.59	119.26	116.50	114.96	113.00
			Tons/hectare		
Yield 4/					
Wheat	1.85	2.13	1.88	2.11	2.47
Rice	3.98	4.25	4.17	4.32	4.87
Coarse grains	2.36	2.51	2.63	2.60	2.68
Corn	2.80	2.98	3.16	3.05	3.16
Sorghum	2.31	2.38	2.47	2.55	2.50
Millet	1.54	1.45	1.55	1.48	1.40
Barley	1.66	1.92	1.85	1.97	2.15
Oats	1.00	1.06	1.20	1.24	1.29
Tubers	2.69	2.60	2.83	2.70	2.98
Others 2/	.26	1.18	1.23	1.16	1.15
Total 3/	2.53	2.78	2.75	2.83	3.13
Production					
Wheat	53.84	62.73	55.21	59.64	68.42
Rice	136.93	143.75	139.26	143.96	161.24
Coarse grains	79.20	83.00	84.80	80.80	83.00
Corn	55.90	60.00	61.00	59.21	61.00
Sorghum	8.10	7.60	7.90	6.65	6.50
Millet	6.60	6.10	6.50	5.77	5.50
Barley	7.00	7.70	7.60	7.47	8.20
Oats	1.50	1.60	1.80	1.70	1.80
Tubers 5/	31.74	28.46	27.85	25.97	26.68
Others 2/	3.06	14.18	14.45	14.65	14.09
Total 3/	304.77	332.12	320.56	325.02	353.43

1/ Data presented here are official figures released by the SSB or the Ministry of Agriculture, except for (1) 1982 area, (2) 1982 total and individual coarse grain production, and (3) 1978-82 barley and oat area and production. The coarse grain series is inconsistent with the USDA historical series prior to 1976 (available in previous issues of this report and in various Foreign Agricultural Service grain circulars).

2/ Consists of soybeans, pulses, and other miscellaneous grains. All of these items are included in China's definition of total grains.

3/ PRC definition.

4/ Calculated from area and production figures.

5/ Converted to a grain-equivalent weight using a 5:1 conversion ratio.

Sources: China Ag Yearbook, 1980 and 1981, China Stat. Yearbook, 1981, and various annual SSB Communiques.

Table 15--Sown area, yield, and production of oilseeds and cotton, 1978-82

Item	1978	1979	1980	1981	1982 1/
			1,000 hectares		
Area					
Cotton	4,867	4,512	4,920	5,185	5,700
Oilseeds, USDA 2/	16,699	16,961	18,174	20,522	22,200
Soybeans	7,144	7,247	7,226	8,024	8,300
Oilseeds, PRC 3/	6,223	7,051	7,928	9,134	9,900
Peanuts	1,768	2,074	2,339	2,472	2,500
Rapeseed	2,600	2,761	2,844	3,801	4,600
Sesameseed	638	843	776	818	700
Sunflowerseed	320	367	845	1,040	1,100
Other oilseeds 4/	897	1,006	1,124	1,003	1,000
			Kg/hectare		
Yield					
Cotton	443	488	548	570	631
Oilseeds, USDA 2/	983	1,028	1,114	1,193	1,225
Cottonseed	890	978	1,100	1,145	1,262
Soybeans	1,058	1,028	1,095	1,163	1,088
Oilseeds, PRC 3/	840	915	968	1,118	1,194
Peanuts	1,343	1,358	1,538	1,545	1,566
Rapeseed	720	870	840	1,073	1,230
Sesameseed	503	495	330	623	489
Sunflowerseed	870	923	1,080	1,283	1,273
Other oilseeds 4/	415	451	480	471	503
			1,000 tons		
Production					
Cotton 5/	2,167	2,207	2,707	2,968	3,598
Cotton (1,000 bales) 5/	9,950	10,100	12,400	13,600	16,500
Oilseeds, USDA 2/	16,423	17,438	20,248	24,489	27,198
Cottonseed	4,334	4,414	5,414	5,936	7,196
Soybeans	7,565	7,460	7,940	9,330	9,030
Oilseeds, PRC 3/	5,218	6,435	7,691	10,205	11,817
Peanuts	2,377	2,822	3,600	3,826	3,916
Rapeseed	1,868	2,402	2,384	4,065	5,656
Sesameseed	322	417	259	510	342
Sunflowerseeds	279	340	910	1,332	1,400
Other oilseeds 4/	372	454	538	472	503
Available oil 6/	2,289	2,636	2,992	3,831	4,451
Available meal 6/	5,959	6,639	7,306	9,160	10,110

1/ All figures are USDA estimates except for output of cotton, cottonseed, soybean, oilseeds (PRC), peanuts, rapeseed, and sesameseed.

2/ Oilseed data published by USDA include only: soybeans, cottonseed, peanuts, rapeseed, and sunflowerseed; area includes cotton.

3/ China's total oilseed data exclude soybeans and cottonseed.

4/ "Other oilseeds" are calculated as a residual and include mainly linseed and castor bean; oil-bearing tree seeds are excluded.

5/ Cotton production is on a ginned-weight basis. Bales are 480 pounds.

6/ Available oil and meal are estimated for the marketing year following harvest by applying assumed crush and extraction rates to production plus net imports of soybeans, soybean oil, and soybean meal.

Source: China Stat. Yearbook, 1981, China Ag. Yearbook, 1981, and various annual SSB Communiques.

Table 16--Reported production of total grain and cotton by province, 1982.

Province	Total grain			Cotton		
	1982	Claim	Source	1982	Claim	Source
	1,000 tons	billion jin		1,000 tons	1,000 dan	
Northeast				--		
Heilongjiang	12,000		USDA estimate.			
Liaoning	11,000		USDA estimate.	23	440, + 25	JPA, 12/28/82, p. 121.
Jilin	10,000	20+	FB, 3/16/83, p. S-2.	--		
North						
Shandong	23,630	47.0	RmRb, 12/8/82, p. 1.	975	project 19,500, +44.4%	PN, 1/4/83, p. 1.
Hebei	16,500	33.0	RmRb, 12/82/, p. 1.	326	expects 6,500 +2,000	JPA, 12/28/82, p. 69.
Beijing	1,860	more than '81	FB, 11/10/82, p. R-2.	1		USDA estimate.
Tianjin	1,200	24.	RmRb, 12/20/82, p. 1.	5	930, +100%	JPA, 3/2/83, p. 189.
Henan	24,300		Ag Att Rpt., 3/3/83.	320	-10%	TOFAS 11, 1/5/83.
Shanxi	8,250	16.5	RmRb, 12/8/82, p. 1.	98	+48.2%	JPE, 2/28/83, p. 92
Northwest						
Shaanxi	9,250	18.5	JPA, 2/16/83, p. 122.	126	2,500,000 [SIC], +100%	JPA, 2/16/83, p. 121.
Gansu	4,690	9.38	FB., 2/28/83 p. T 1.	5	93, +14, +17.5%	FB, 2/28/83, T2.
Nei Monggol	5,300	10.6	FB, 12/16/82, K 11.	--		
Ningxia	1,180	2.03	JPA, 2/25/83, p. 26.	--		
Xinjiang	4,055	8.11	JPA, 4/18/83, p. 149	150	3,000, +32%	RmRb, 1/16/83, p.1.
Qinghai	930	1.867	RmRb, 12/20/82, p. 1.	--		
East						
Zhejiang	15,700	31.4	RmRb, 12/8/82, p. 1	89	+31%	PN,____ p._
Jiangsu	28,550	51.7	RmRb, 3/6/83, p. 2	550	decreased	TOFAS 11, 1715/83.
Shanghai	2,030	4.0	FB, 1/24/83, p. 01.	76	1,517 ,+2.1%	JPE, 2/28/83, p. 92.
Anhui	18,500	37.0	RmRb, 12/2/83, p. 1.	148	-5%	TOFAS 11, 1/1/5/83.
Central						
Hubei	19,030		SWB, 3/30/83, p.A7.	350	fell slightly	JPA, 4/6/83, p. 119.
Hunan	23,250	46.1	FB, 12/23/82, p. 1	89	-5%	TOFAS 11, 1/1/5/83.
Jiangxi	13,250		TOFAS 518, p. 1.	56	1,100, +20%	PN, _____, p. _
South						
Guangdong	18,750	37.5	JPA, 12/28/82, p. 60.	--		
Guangxi	12,750	25.5	JPA, 12/28/82, p. 65.	1		USDA estimate.
Fujian	8,310	16.6	RmRb, 12/2/82, p 1.	--		
Southwest						
Sichuan	37,400	74.8	JPA, 2/16/83, p. 137.	82	-6%	FB, 3/21/83, K9.
Guizhou	6,650	13.3	RmRb, 12/20/82, p. 4.	1		USDA estimate.
Yunnan	9,300	18.6	FB, 12/16/82, p. K-10.	1		USDA estimate.
Xizang	500		USDA estimate.	--		
Total, sum above	345,730			3,472		
Total, SSB	353,430			3,598		

-- = No claim expected; province normally produces none or negligible amount less than 1,000 tons.
1 dan = 50 kilograms.
1 jin = 0.5 kilograms.

Table 17--Production of grains, major oilseeds, and cotton, by province, 1980 and 1981

Province	Total grain 1/		Rice		Wheat		Corn		Tubers		Soybeans		Peanuts		Rapeseed		Cotton	
	1980	1981	1980	1981	1980	1981	1980	1981	1980	1981	1980	1981	1980	1981	1980	1981	1980	1981
								1,000 tons										
NORTHEAST																		
Heilongjiang	14,625	12,500	795	560	3,945	3,140	5,200	4,415	510	450	2,205	2,015	3	6	2	0	0	0
Liaoning	12,215	11,605	1,075	1,125	55	55	6,535	5,820	105	90	535	625	137	170	4	3	21	22
Jilin	8,595	9,220	2,355	2,490	165	155	5,070	5,275	200	245	605	790	10	10	0	0	0	0
NORTH																		
Shandong	23,840	23,125	740	650	7,660	8,700	8,255	7,940	5,555	4,285	840	830	1,404	1,390	7	17	537	675
Hebei	15,225	15,750	830	710	3,840	4,175	6,630	6,475	1,250	1,095	295	305	358	351	9	10	247	222
Beijing	1,860	1,805	295	215	405	560	890	785	25	20	15	10	26	17	1	1	1	1
Tianjin	1,380	1,070	310	125	275	210	575	545	25	20	30	25	9	8	0	0	2	2
Henan	21,485	23,145	1,780	2,045	8,905	10,835	5,330	4,805	3,525	2,850	920	1,540	248	185	134	196	406	355
Shanxi	6,855	7,250	70	55	1,185	1,615	2,630	2,430	525	465	130	125	5	7	3	6	78	66
NORTHWEST																		
Shaanxi	7,570	7,500	755	530	2,300	3,540	2,750	2,025	685	490	180	105	12	12	77	136	81	63
Gansu	4,925	4,350	20	15	2,400	2,320	890	675	440	320	50	35	0	0	33	31	3	4
Nei Monggol	3,965	5,100	40	40	825	1,000	1,390	1,425	300	375	125	195	0	0	18	22	0	0
Ningxia	1,200	1,265	330	370	495	540	85	65	65	45	15	10	0	0	1	1	0	0
Xinjiang	3,885	3,900	255	260	2,130	2,225	1,265	1,230	25	25	20	15	1	1	56	54	79	114
Qinghai	955	800	0	0	565	500	0	0	75	55	0	0	0	0	68	61	0	0
EAST																		
Zhejiang	14,355	14,195	11,760	11,810	795	745	155	160	780	725	120	115	13	13	272	383	83	68
Jiangsu	23,575	25,115	11,755	13,065	5,080	5,260	1,230	1,735	1,190	1,585	290	475	123	204	203	431	418	563
Shanghai	1,870	1,855	1,165	1,250	205	175	40	30	5	0	5	5	0	0	96	147	76	74
Anhui	14,540	17,875	7,730	9,450	3,405	4,355	385	395	2,125	2,205	495	905	188	248	272	647	122	156
CENTRAL																		
Hubei	15,365	17,070	10,380	12,000	2,665	2,485	860	1,025	875	920	115	175	59	61	116	223	316	353
Hunan	21,245	21,705	19,425	19,985	245	265	215	210	1,075	905	135	165	43	43	144	306	96	94
Jiangxi	12,400	12,685	11,880	12,165	90	95	10	10	275	270	115	110	51	57	72	116	43	47
SOUTH																		
Guangdong	18,085	16,555	16,230	14,790	240	140	65	65	1,365	1,360	115	120	520	595	7	9	0	0
Guangxi	11,910	11,495	10,070	9,815	25	20	1,110	1,200	170	180	100	140	129	131	2	5	1	1
Fujian	8,020	8,100	6,715	6,810	225	205	0	0	965	940	70	90	112	157	20	25	0	0
SOUTHWEST																		
Sichuan	32,640	34,655	15,370	16,390	4,715	5,140	5,410	5,940	4,670	5,135	205	225	121	123	582	833	95	87
Guizhou	6,480	5,675	3,250	2,870	350	320	2,115	1,825	505	380	80	100	13	12	135	318	1	1
Yunnan	8,655	9,170	3,875	4,360	785	735	2,630	2,695	535	535	70	75	18	26	42	73	1	1
Xizang	505	485	5	5	180	130	5	5	0	0	0	0	0	0	11	12	0	0
Total	320,560	325,020	139,910	143,960	55,210	59,640	62,600	59,210	28,730	25,970	7,940	9,330	3,600	3,826	2,384	4,065	2,707	2,968

Totals may not add exactly because of rounding.

1/ China's total grain category includes wheat, rice, corn, sorghum, millet, barley, oats, other miscellaneious grains, tubers, and soybeans.

Sources: 1981 and totals from: China Stat. Yearbook, 1981, pp. 147-148, and 1980 from: China Ag. Yearbook, 1981, pp. 22-28 and 30-36. For 1979 data, see tables 3, 5, and 8 of last year's report.

Table 18--Production of other agricultural products, 1978-82

Product	1978	1979	1980	1981	1982
			1,000 tons		
Total sugar crops	23,819	24,614	29,113	36,028	43,594
Sugarcane	21,117	21,508	22,807	29,668	36,882
Sugar beet	2,702	3,106	6,305	6,360	6,712
Sugar	2,267	2,500	2,570	3,166	3,384
Tobacco	1,242	941	845	1,497	1/ 2,078
Flue-cured tobacco	1,052	806	717	1,279	1/ 1,807
Tea	268	277	304	343	397
Jute and hemp	1,088	1,089	1,098	1,260	1,060
Silk cocoons	228	271	326	311	314
Aquatic products	4,656	4,305	4,497	4,605	5,155
Rubber	(95)	97	103	128	(153)

( ) Indicates derived from percentage increase.

1/ USDA estimates.

Sources: China Stat. Yearbook, 1981 and various annual SSB Comminiques.

Table 19--Major indicators of textile production, 1979-82

Item	Unit	1979	1980	1981	1982
Cotton yarn	Million tons	2.635	2.926	3.170	3.354
	Million bales 1/	14.670	2/ 16.286	17.580	18.680
Cloth	Billion meters	12.150	13.470	14.270	15.350
	Billion square meters	11.430	12.800	NA	14.920
Chemical fibers	Thousand tons	326.300	450.300	527.300	517.000
Synthetic fibers	Thousand tons	NA	297.990	385.000	375.000
Silk	Thousand tons	29.749	35.400	37.400	37.100
Silk textiles	Million meters	663.450	795.000	835.000	914.000
Woolen piece goods	Million meters	90.170	3/101.600	113.000	127.000

NA = not available.

1/ A bale of cotton yarn weighs about 179 kgs.
2/ FB 2/19/81, p. L-9.
3/ FB 2/18/81, p. L-18.

Sources: China Stat. Yearbook, 1981, p. 221 and various annual SSB Communiques, except as otherwise noted.

Table 20—Major manufactured farm inputs, 1978-82

	Unit	1978	1979	1980	1981	1982
Yearend farm machinery stocks						
Large and medium-sized tractors	1,000 no.	557	667	745	792	812
Hand tractors	"	1,373	1,671	1,874	2,037	2,290
Power-driven drainage and irrigation machines	1,000 hp.	65,575	71,221	74,654	74,983	76,700
Annual farm machinery production						
Large and medium-sized tractors	1,000 no.	113.5	125.6	98	53	40
Hand tractors	"	324.2	317.5	218	199	298
Internal combustion engines 1/	1,000 hp.	28,180	29,080	25,390	20,840	22,960
Rural electric consumption 2/	Million kwh.	25,300	28,300	32,100	37,000	39,700
Chemical fertilizer production 3/	1,000 tons	8,693	10,654	12,320	12,390	12,781
Nitrogen	"	7,637	8,821	9,990	9,860	10,219
Phosphate	"	1,033	1,817	2,310	2,510	2,537
Potassium	"	21	16	20	20	25
	"					
Chemical pesticides	"	533	537	537	484	457

1/ Total national production.
2/ Not all for agricultural production.
3/ All figures in nutrient weight. The 1978 breakdown is derived from 1979 production figures and reported percentage changes from 1978. Consequently, individual items do not exactly sum to total.

Source: Various annual SSB Communiques.

Table 21--Foreign trade, by calendar years 1978-82

	1978	1979	1980	1981	1982 1/
	Million dollars				
Exports--total 2/	10,163	13,489	18,941	21,539	21,842
—agricultural	3,122	3,639	4,247	4,721	4,500
Imports--total	10,339	14,431	19,339	17,999	16,002
--agricultural	2,486	3,466	5,328	4,940	4,000
Trade balance--total	-166	-942	-398	3,540	5,840
—agricultural	636	173	-1,081	-219	500

1/ Estimated.
2/ All values are f.o.b. Source's data are derived from partner-country reports and therefore sometimes differ substantially from China's official statistics, which, for the 5 years, show exports of: 9.75, 13.66, 18.27, 20.9, and 20.9 billion dollars and imports of 10.89, 15.67, 19.95, 19.10, and 18.0 billion dollars.

Sources: Data for 1982 are based on Central Intelligence Agency, China: International Trade, Third Quarter, 1982, EA CIT 83-001, Mar. 1983. Data for 1978-81 are from Central Intelligence Agency, China: International Trade Annual Statistical Supplement, EA 83-10049, Mar. 1983.

Table 22--Recent grain trade agreements and contracts 1/

Country	Date signed	Grain	Amount	Delivery period	Remarks
			Million tons		
Argentina	Sept. 1980	Wheat, corn, & soybeans	1.0-1.5 yearly	1981-1984	Replaces final year (1981) of May 1978 agreement, extends agreement to include soybeans, and sets a minimum amount for wheat. Sales by private contract.
	Dec. 1982	Corn	.2		Cash sale from 1981/82 harvest.
	Dec. 1982	Wheat	.7+	Jan.-Apr. 1983	Cash sale at $148 to $150/ton.
		Wheat	.3		Sales during Nov. 1982-Jan. 1983 reached at least 1.5 million tons.
	Jan. 1983	Wheat	.5	Mar.-May 1983	Cash sale at $145 to $147/ton by Argentine Grain Board. Subsequent sales of 500,000 to as much as 1 million tons were reported during March-April 1983.
Australia	Nov. 1981	Wheat	1.5-2.5 yearly	1982-1984	Three-year long-term agreement, presumably with 12-month credit provisions similar to previous agreement.
	Nov. 1981	Wheat	1.0	Feb.-June 1982	First contract under 3-year agreement. Cash sale; not traditional 12-month credit terms.
	March 1981	Wheat	1.0	July-Dec. 1982	Terms similar to Nov. 1981 sale.
Canada	May 1982	Wheat	10.5-12.6	Aug. 1982-Jul. 1985	Three-year agreement. Credit reduced to 12 months.
	May 1982	Wheat	1.7	Aug. 1982-Jan. 1983	Cash sale. First under fifth long-term agreement.
	July 1982	Wheat	.5	Aug.-Dec. 1982	Cash sale with payment in Canadian dollars.
	July 1982	Wheat	.3	Aug.-Sept. 1982	Cash sale with payment in Canadian dollars.
	Nov. 1982	Wheat	1.7	Feb.-July 1983	Cash sale with payment in Canadian dollars.
France	Sept. 1980	Wheat	.5-.7 yearly	Aug. 1980-July 1983	Three-year agreement. Sales by private contract.
	June 1982	Wheat	.875		Twenty-percent cash sale with credit for 700,000 tons for 2 years at 12 percent. The normal weekly EC restitution plus a freight rebate of 6 European currency units were granted French traders.
	Feb. 1983	Wheat	.5	Apr.-May 1983	Cash sale. A supplementary restitution of 4 European currency units was granted French traders for April deliveries and 6 European currency units for deliveries in March, June, or July. No restitution correction was made for May or August deliveries.
United States	Oct. 1980	Wheat & corn	6.0-8.0 yearly	1981-1984	Four-year agreement (15 to 20 percent corn). Sales by private contract. Option to purchase up to 9 million tons without prior notification. Government-to-government consultations required for purchases below 6 or above 9 million tons.

1/ Contract data for earlier years are available in previous issues of this report. Contract data given here are as of April 1983.

Table 23--Trade in grain, by country

Item	Calendar year			July/June year		
	1980	1981	1982 1/	1980/81	1981/82	1982/83 2/
			1,000 tons			
IMPORTS:						
Total grain	13,638	13,511	15,546	14,824	14,672	15,667
Argentina	665	126	249	200	245	2,250
Australia	2,018	1,285	2,210	1,484	1,492	1,150
Canada	2,627	3,142	3,526	2,922	3,068	4,100
EC	133	622	684	642	134	1,375
Thailand 3/	159	251	416	241	378	267
U.S. 4/	8,036	8,085	8,461	9,335	9,335	6,525
Wheat	11,792	12,691	13,258	13,712	13,049	13,000
Argentina	665	126	94	200	199	2,100
Australia	1,998	1,261	2,102	1,440	1,384	1,150
Canada	2,627	3,065	3,526	2,922	2,991	4,100
EC	133	622	666	642	116	1,375
U.S. 4/	6,369	7,617	6,870	8,508	8,359	4,275
Coarse grain	1,828	712	1,967	992	1,328	2,500
Argentina	0	0	155	0	46	150
Australia	20	24	108	44	108	0
Canada	0	77	0	0	77	0
EC	0	0	18	0	18	0
Thailand	141	143	95	121	83	100
U.S. 4/	1,667	468	1,591	827	996	2,250
EXPORTS						
Rice 5/	1,116	2/ 583	2/ 500			

1/ Preliminary.
2/ USDA forecasts as of May 1983.
3/ Includes rice imports.
4/ Direct exports plus transshipments through Canada.
5/ Milled basis. China exports rice primarily to Asian and Eastern European nations and Cuba.

Sources: Official partner-country trade statistics.

Table 24--Trade in other agricultural commodities, by country

Item	Calendar year			Marketing year 1/		
	1980	1981	1982 2/	1980/81	1981/82	1982/83 3/
	1,000 tons					
IMPORTS:						
Cotton				2/773	2/435	109
Egypt				34	26	5
Guatemala				51	15	5
Mexico				51	38	11
Pakistan				212	85	44
Sudan				12	15	16
Other				114	71	24
U.S.				299	185	4
Soybeans	665	554	299	540	496	100
Argentina	0	81	53	39	95	100
Brazil	0	0	0	0	0	0
U.S. 4/	665	473	246	500	441	0
Soybean oil	120	53	5/61	73	5/31	40
Argentina	0	3	0	3	0	10
Brazil	21	24	45	45	15	30
U.S.	100	26	0	26	--	0
Sugar 6/	917	2/1,183	2,160			
Australia	277	371	387			
Brazil	0	13	147			
Cuba	512	573	692			
Philippines	43	90	200			
Thailand	53	110	556			
Others	33	26	178			
EXPORTS:						
Soybeans	125	2/137	137	3/150	3/125	250
Hong Kong	10	8	10	8	10	13
Japan	100	113	112	120	93	215
Malaysia 7/	8	2/ 9	10	9	10	11
Singapore 7/	7	6	7	6	7	11
Sugar 6/	235	145	NA			

NA = Not available.
-- = Negligible.

1/ Marketing years: cotton, August/July; soybeans, September/August; and soybean oil, October/September.
2/ Preliminary.
3/ USDA forecasts as of May 1983.
4/ Direct exports plus transshipments through Canada.
5/ Includes 16 from other origins in calendar 1982.
6/ Raw-value basis.
7/ Marketing year estimated by distributing the calendar-year figures on a 2/3 and 1/3 basis.

Sources: Official partner-country trade statistics and International Sugar Organization, Statistical Bulletin, February 1983, Vol. 42, No. 2, p. IV-V.

Table 25--U.S. agricultural exports to China, 1979-82 1/

Item	Fiscal years				Calendar years			
	1979	1980	1981	1982	1979	1980	1981	1982
				1,000 tons				
Wheat	2,683	4,149	7,953	8,221	1,604	6,369	7,617	6,870
Corn	2,754	1,788	725	1,117	2,390	1,667	468	1,591
Tobacco	0	--	--	0	0	--	--	0
Cattle hides 2/	--	283	206	394	17	405	186	334
Soybeans	142	810	531	370	412	665	473	246
Cotton	141	514	254	186	250	463	249	117
Tallow, inedible	1	31	14	15	11	31	4	14
Soybean oil	59	100	26	--	59	100	26	0
				1,000 dollars				
Wheat	357,015	691,794	1,402,217	1,268,190	221,406	1,088,709	1,298,277	1,053,493
Corn	291,588	225,500	108,889	138,668	268,547	224,540	62,466	189,358
Tobacco	0	204	54	0	2	202	54	0
Cattle hides	2	9,224	6,183	13,638	798	12,657	6,000	10,890
Soybeans	37,760	200,707	154,716	95,264	106,722	173,491	129,708	63,225
Cotton	193,495	754,535	481,438	292,417	357,042	701,298	463,965	177,771
Tallow, inedible	602	15,965	6,311	7,022	6,141	15,538	1,743	6,477
Soybean oil	35,894	56,452	17,091	1	35,894	56,452	17,091	0
Others	816	2,690	7,053	3,919	907	4,337	5,682	3,513
Total agricultural	917,172	1,957,071	2,183,952	1,819,119	997,459	2,277,224	1,985,586	1,504,727
Total nonagricultural					726,341	1,540,060	1,642,456	1,406,609
Total exports					1,723,800	3,817,284	3,628,042	2,911,336

-- = Negligible.

1/ U.S. domestic exports, f.a.s.-value basis. Exports include transshipments of agricultural products through Canada.

2/ Numbers in thousands.

Sources: U.S. Bureau of the Census, "U.S. Agricultural Exports," country by commodity, various printouts, 1979-82; U.S. Department of Agriculture, Economic Research Service, U.S. Foreign Agricultural Trade Statistical Report, various issues.

Table 26--Major U.S. agricultural imports from China, by calendar year, 1978-82 1/

Commodity	1978	1979	1980	1981	1982
			1,000 dollars		
Meats, rabbit, frog, venison, fresh, frozen	1,045	950	943	736	1,005
Eggs	235	254	283	289	447
Fur skins, raw, undressed	252	105	476	128	479
Vegetable and garden seeds	10	52	278	1,100	1,366
Vegetables, fresh, frozen, dried, or prepared	1,892	1,931	5,040	10,898	16,029
Mushrooms	55	218	13,551	23,165	28,593
Nuts, edible	7,566	7,796	1,800	154,725	3,394
Peanuts	41	24	77	152,867	1,372
Fruits, edible, fresh, dried, and preserved	1,017	1,381	2,142	2,988	5,568
Honey	237	6,534	6,664	7,366	6,876
Cocoa, cocoa butter, and cocoa beans	1,592	0	213	1,671	13,950
Coffee, crude	0	153	0	32	4,002
Tea, crude or prepared	4,750	7,660	9,922	10,731	9,995
Spices and spice seeds	2,917	4,157	2,816	4,055	5,539
Beverages, fermented alcholic	149	490	879	1,419	1,904
Tobacco	380	15	114	88	48
Tong oil	2,906	3,360	1,451	62	73
Other vegetable and nut oils	335	53	525	277	448
Food preparations	2,345	2,466	3,978	4,971	4,866
Feathers and downs	25,093	9,331	24,155	24,377	11,060
Bristles, crude and processed	6,928	9,636	9,074	6,914	6,697
Hair, horse, cattle, coarse animal, goat kid	859	947	1,917	2,550	2,214
Hoofs and horns	0	0	721	1,915	1,116
Intestines, sausage casings, albumen	1,622	1,762	2,950	2,995	1,623
Licorice root and extract	2,474	7,273	12,582	3,553	11,318
Vegetable substances, crude	71	582	981	1,350	2,829
Hair, camel	963	334	1,143	2,839	1,122
Hair, cashmere, goat	3,099	3,050	3,041	2,533	3,229
Silk, raw and tussah	4,517	6,442	4,267	6,863	5,705
Drugs, natural	248	614	1,007	1,388	1,430
Essential oils	6,705	5,007	13,327	9,882	11,975
Gelatin	3,183	1,657	3,165	1,892	696
Other agricultural commodities	519	1,474	3,703	5,576	5,027
Total agricultural commodities	83,964	85,684	133,108	299,328	170,623
Total nonagricultural commodities	239,986	462,816	909,219	1,530,699	2,045,233
Total imports	323,950	548,500	1,042,327	1,830,027	2,215,856

1/ Imports for consumption, customs-value basis.

Sources: U.S. Department of Commerce, Bureau of the Census, "U.S. Agricultural Imports," country by commodity, various printouts; U.S. Department of Agriculture, Economic Research Service, U.S. Foreign Agricultural Trade Statistical Report, various issues.

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